AUGUST 1985 $3.95

portable 100/200

FOR USERS OF TANDY BRIEFCASE COMPUTERS

WRITE ROM REVIEWED

Worth both the wait and the money

THAT DASHING 100!

Programs to quicken label printing and file transfer

¡SE HABLA BASIC!

Translation for non-English programers

The ConNECtion

Great Escapes — Mission of Mercy

What People Are Saying About Traveling Software®...

For TRS-80 Model 100, NEC PC-8201, and Olivetti M10 laptop computers:

IDEA™

"This thing is fantastic. I can write proposals in about 50% of the time it took previously, I can organize presentations better — I use it for just about everything." Jonathan W. Pearce, C.P.A.

"I found it an invaluable tool. It has become as much a part of my 100 as Text and Telcom, like a second skin." John P. Mello, Portable 100/200, March, 1985

Organize anything from simple lists to complex outlines. Easily reorganize and search. Use word processing and database capabilities. Develop outlines from rough drafts into complete papers. $79.95

T-backup™

"Your program is super, and a real time saver." Bruce Arnold, special sales manager.

"Your T-backup program is the most useful that I have ever purchased for my Model 100. Keep up the good work." Thomas Fehsenfeld, customer.

Save the entire contents to cassette from RAM in minutes, rather than back up files individually. Check the integrity of saved data copies. Restore data from cassette. $19.95

T-base™

"Cramming the complexity of a relational database manager into a portable computer ... may seem ambitious ... Yet Traveling Software's T-base handles the challenge with surprising grace..." P. Gregory Springer, InfoWorld, December 10, 1984

Design relational data bases. Set up screen files. Borrow information from fields in other data bases. Perform math computations. Create custom-printed or LCD display reports. $99.95

T-Writer™

"...all that it is advertised ... superior in many aspects to the WRITE+ program that I used previously." John J. Atkins Jr., food service director.

Print documents created using the built-in TEXT program. Include justification, headings, footings, underlining, italics, boldface, and more. Produce form letters and mailing labels. $49.95

Traveling Appointment Manager™

"The program and manual were user friendly... an excellent value." Mary Jeann Batham, Portable 100/200, May 1984

Maintain a detailed list of appointments and things-to-do. Consult on-screen or printed records. Automatically reschedule recurring appointments. $59.95

Traveling Expense Manager™

"...the Traveling Expense Manager is well-thought-out and keeps track of exactly the type of information that you need while you are on the road. It's everything you need to keep your boss — and the IRS — happy." Dan Robinson, InfoWorld, July 30, 1984

Define expense categories. Record expenses to any account. Indicate if a business expense is billable. Produce reports by client or project, and the type of expense. $59.95

Traveling Project Manager™

"...very useful in helping me track my projects ... simple ... provides useful data and printouts." J. Michael Masterson, strategic projects manager

Simultaneously manage several projects — small or large. Enter dollar or other unit expenditures. Produce a variety of summaries and printed reports. $59.95

Traveling Sales Manager™

"I spend a lot of time on the road and find the Traveling Sales Manager useful... The manual, in particular, was outstanding." Don Gillespie, salesman

Keep a detailed log of customers and contacts. Record what customers purchase and when. Store important biographical data and reminders to call on customers. $59.95

Traveling Time Manager™

"...first-class software, a valuable tool for consultants and others billing clients by the hour." John P. Mello, Portable 100/200, April 1984

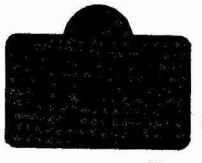
Track time spent on projects or for a client. Apply your own billing rate. Indentify time expenditures as billable or nonbillable. $59.95

To order, or find the dealer nearest you,

CALL 1-800-343-8080

For information or technical assistance,

CALL (206) 367-8090



Traveling Software, Inc.
11050 Fifth Avenue, N.E
Seattle, WA 98125
(206) 367-8090

Circle 58 on Reader Service Card

Traveling Software
introduces everything you would ever want on a single plug-in ROM chip . . .

THE™ ULTIMATE ROM

NOW . . . THE ULTIMATE IN ROM SOFTWARE FOR THE MODEL 100/200

The ULTIMATE ROM contains three acclaimed programs:

IDEA! — One of the hottest-selling programs for the Model 100 and NEC PC-8201! Organizes anything from simple lists to complex outlines. Easily reorganizes and searches. Offers many word processing and database capabilities. Develops outlines from rough drafts into finished documents.
Original cassette price: $79.95

T-base — The database reviewers have rated as number one for the Model 100! Lets you design relational databases and set up screen files. Borrows information from fields in other databases. Performs math computations. Creates custom-printed or LCD display reports. **Original cassette price: $99.95**

T-writer Still the favorite text formatter with owners of the Model 100 and NEC PC-8201. Prints documents created using the built-in TEXT program. Includes justification, headings, footings, underlining, italics, boldface, and more. Produces form letters and mailing labels. Word-Star-like command.
Original cassette price: $49.95

ADDED MEMORY The ULTIMATE ROM adds another 32K to your computer's memory by storing programs outside precious RAM memory space, freeing RAM for larger data files.

If your computer has a 32K memory already, for example, you can create files up to a whopping 28K in size using T-base, IDEA!, or your computer's TEXT program . . . over five hundred names and addresses in a T-base file.

ADDED CONVENIENCE With the ULTIMATE ROM you don't need to load programs individually, either. Simply plug in the chip and you're always ready to work — without using slow, clumsy cassette recorders.

The ULTIMATE ROM also works with other memory expansions, like PG Design's 64K RAM module or Purple Computing's NEC SideCar. The ULTIMATE ROM works in any active memory bank on your computer — no need to copy programs from bank to bank.

A COMPLETE PACKAGE Each of the three ULTIMATE ROM programs is complete and full-functioned — no features have been trimmed. And you have complete documentation for each program, along with an audio introduction by the renowned Traveling Professor.

THE BOTTOM LINE: IT'S A GREAT DEAL Three programs. One chip. And one low introductory price: $199.95 — a savings of $30 as sold on cassette. After our introductory special, the ULTIMATE ROM will be $229.85. Traveling Software is so sure you will like the ULTIMATE ROM, it is offering a 30-day money-back guarantee.

Only $199.95*

To order call toll free 1-800-343-8080
For technical information call (206) 367-8090

*Until September 20, 1985

Traveling Software and the Traveling Software logo are registered trademarks of Traveling Software, Inc.
Guardian Rom copyright 1985 Polar Engineering
SideCar is a trademark of Purple Computing

Traveling Software, Inc.
11050 Fifth Avenue N.E.
Seattle, WA 98125
(206) 367-8090

TRAVELING SOFTWARE®

Circle 57 on Reader Service Card

BENJAMIN MAGRO

VOLUME TWO, NUMBER THIRTEEN AUGUST 1985

COVER STORY

WRITE ROM: WORTH THE WAIT 34
This text formatter and word processor puts a desktop in your briefcase.
By Deborah L. Davis

Cover photograph by Benjamin Magro

LABELS ON THE RUN 13
Alleviate mailing label tedium with Endless, a program to print thousands of addresses in a single run.
By Richard Ramella

CONTINUOUS TRANSFER 13
Learn how the 100 continually transfers data to another computer while reading from cassette.
By Peter Petrakis

¡ SE HABLA BASIC! 21
Translator interprets Spanish BASIC keywords for the English-reading 100 and 200.
By David D. Busch

NEC GREAT ESCAPES 22
They may not be Houdini, but NEC owners can do some fancy programing escapes of their own.
By Luft Pfeiff

NEC JOINS AFRICAN RELIEF 30
The NEC PC-8201A endures and records the disaster of Senegal's drought-stricken land.
By Larry Hollon

DEPARTMENTS

ROM WITH A VIEW 4
GIGO 6
NEW PRODUCTS 16
ADVERTISERS INDEX 37
REVIEW 46
SIG 100/200 56
THE WIRE 64

portable 100/200

Publisher
James S. Povec
Associate Publisher
Carl Cramer
Editorial Director
Bruce A. Taylor

Managing Editor
Nancy L. Laite
Technical Editor
J.D. Hildebrand
Associate Technical Editor
Alan L. Zeichick
Associate Editor
Deborah L. Davis

Designer/Art Director
Paige Garland Parker
Consulting Art Director
Peter D. Koons
Editorial Production
Marjorie Strauss
Elizabeth Maritato
Judith E. C. Webster
J. L. Patterson

Advertising Director
James W. McBrian, Jr.
Circulation Director
Nancy A. Wight
Circulation Manager
Loriel Peters
Subscriber Relations
Mary M. Wight
Business Manager
April A. Jenkins
Special Projects
Bonnie Hellevig
Front Office
Melissa R. Andrews

Editorial, Advertising, Business and Circulation Offices:
Camden Communications, Inc.
P.O. Box 250 or Highland Mill
Camden, ME 04843
Telephone: (207) 236-4365
CompuServe ID: 76703,372

PORTABLE 100/200 is copyrighted (1985) and published monthly by Camden Communications, Inc., formerly known as Computer Communications, a Maine corporation with offices at Highland Mill, Camden, ME 04843; James S. Povec, president; Carl Cramer, vice president. Camden Communications, Inc. reserves all rights to the contents of this magazine, and reproduction in whole or in part is expressly prohibited unless authorized in writing by the publisher. Publisher holds that views expressed in by-lined stories or articles are the views of the author and may not reflect the views of the publisher. TRS-80, Radio Shack, Tandy, Model 100 and Tandy 200 are trademarks of the Radio Shack Division of Tandy Corporation. Contributors: manuscripts and photographs are welcomed. Publisher assumes no responsibility for the return of unsolicited materials. Materials submitted for consideration should be accompanied by a postage-paid, self-addressed envelope. Unsolicited material may be published at the discretion of the publisher and paid for at the magazine's regular, stated rates for such work unless other arrangements are made in writing. Subscriptions are $32 for 12 issues. User Group subscription rates available. Rates for delivery outside the U.S. available upon request. Postmaster: Please send changes of address to PORTABLE 100/200 at the above address. Application for mailing at second class rates pending at Camden, Maine, and additional mailing offices. Dealer inquiries invited.
ISSN 0738-7016

THE BETTER LETTER BOX

Introducing EasyPlex™. The new, easy-to-use electronic mail system from CompuServe.

Finally! Electronic Mail that's so easy to use you can start composing and sending messages the first time you get online.

Designed for various experience levels, EasyPlex has a menu mode with simple, easy-to-follow directions for beginners, and it lets experienced users save time by working in the prompt or command modes. With EasyPlex, you can compose, edit, send, file, and take advantage of sophisticated options previously available only with more expensive services.

CompuServe's EasyPlex lets friends and relatives, associations and club members communicate any time of the day or night. And small business owners, real estate professionals, insurance agents, lawyers, writers, etc. can communicate quickly and simply—either interoffice or interstate. "It's Easy." "Just Plex it!"

Best of all, EasyPlex is available to all CompuServe subscribers. And, along with EasyPlex, you get hundreds of valuable and entertaining computing options. Plus the assurance of belonging to the largest, fastest growing computer information service in the world and the premier supplier of business information to FORTUNE 500 companies.

Circle 10 on Reader Service Card

Start communicating! To buy a CompuServe Subscription Kit, see your nearest computer dealer. To receive our informative brochure or to order direct, call or write:

CompuServe®

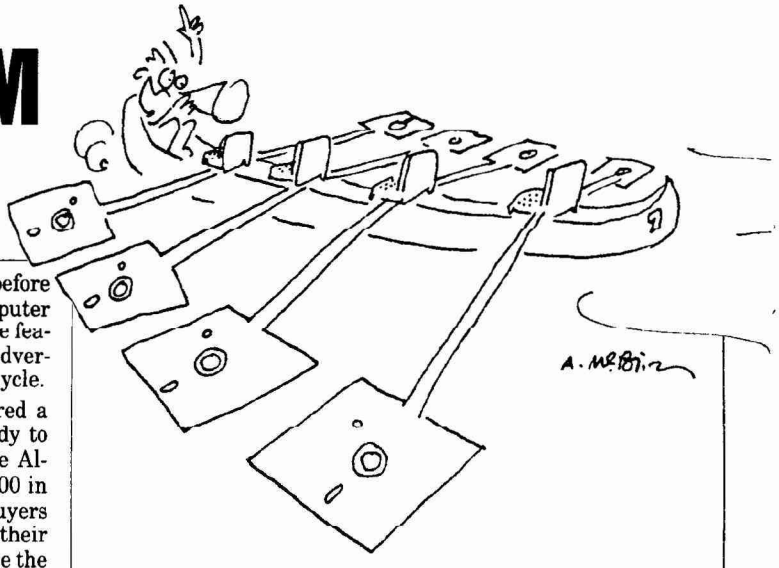
Information Services, P.O. Box 20212
5000 Arlington Centre Blvd., Columbus, Ohio 43220

800-848-8199
In Ohio, call 614-457-0802

An H&R Block Company

THE WAITING ROM

Immediate delivery means *we have working prototypes.*
—George Morrow
Morrow Designs



The practice of promoting and advertising products before they are actually available is as old as the microcomputer industry. In January 1975, Popular Electronics magazine featured the first consumer micro, the Altair, on its cover. Advertisements in the magazine promised a 60-day delivery cycle.

What readers didn't know was that the cover featured a non-working mock-up and that *no* computers were ready to ship. Thousands sent in $397 checks, taking MITS, the Altair's manufacturer, from $400,000 in the red to $250,000 in the black overnight. Although many of the early buyers waited six months or more for their computers, it was their capital that allowed MITS to fine-tune the design, produce the Altair and spark the microcomputer revolution.

The vapor tradition isn't limited to hardware. According to the book Fire in the Valley (Osborne/McGraw-Hill, 1984, Paul Freiberger and Michael Swaine), it was soon after the Altair's introduction in Popular Electronics that a Harvard freshman named Bill Gates telephoned the president of MITS. "We had a fairly aggressive posture," Gates remembers. "We said, 'We have a BASIC. Do you want it?' "

Gates had no BASIC. But from his "aggressive" promotion of an idea came Microsoft, which was eventually to produce the code that breathes life into the IBM PC, the Apple Macintosh and the Radio Shack Model 100.

It's a fair bet that the enthusiastic readers who shelled out $397 for MITS's vaporware felt burned when they realized their checks were fueling the company's research-and-development efforts. And any anger they directed toward Popular Electronics was probably justified.

But let's look at the greater good here. Without the influx of capital, the Altair — and, arguably, the microcomputer industry as a whole — would have stalled out in 1975. If Bill Gates had been possessed of just a bit less *chutzpah,* Microsoft might never have been born.

It's December 1975. You're the editor of Popular Electronics. What do you do?

Or better yet. It's 10 years later and you're the editor of Portable 100/200. Each issue contains ads for products, a goodly portion of which you *know* aren't ready, and an equal number you *suspect* won't be shipped for several months. Courts are increasingly willing to name magazine publishers as co-defendants in cases involving fraudulent advertising. And readers have the right to know whether they can expect products in return for their prepaid orders.

But you also know that the products, when they arrive, will expand the usefulness and value of Tandy portables 'way beyond anything Tandy ever dreamed of. And without the capital from advance orders, the entrepreneurial third-party vendors won't be able to stay in the market.

So what do you do?

Recent events have brought this question to the fore. Three times in as many months we've received prototype products for evaluation. In each case the products were presented as production units *until* the manufacturers surmised from the direction of our follow-up questions that the reviews would be negative. Then they explained that when the product *really* came out it would correct all the deficiencies we'd noted.

When a significant product is advertised to users, it becomes news. If the product is available and performs as claimed, it's good news. When — after six months of advertising — the best the manufacturer can do is send us a prototype, that's bad news.

We'd like to report just good news. But the nature of this industry is that products are announced, advertised, even shipped before the bugs are worked out. And reviewers are caught in the squeeze between the reader's need to know about availability and the vendor's equally valid need to have some space in which to develop products.

The issue is compounded by the industry's impending maturity. When the Model 100 was first introduced, users were enthusiasts who were eager to receive even the most bug-laden, delayed products that held some promise of improving the computer's usefulness. There was an innocence then that led to a dialog between vendors and users. They worked together to exterminate bugs, and users were more forgiving of production delays.

Today's surveys of Model 100 users show that the computers have migrated into business, and that users expect products to add functionality immediately, right out of the box. The vendor/user relationship is more businesslike, and when a product fails to perform as advertised this relationship can become adversarial. Manufacturers and software publishers are coming to terms, with varying levels of success, with users' heightened expectations.

You're the editor. You represent the users. You can't duck the question. What do you do?

If you're like us, you compromise. You run the ads without comment — the advertisers bought that space, and it's theirs to use as they please. You run product listings when a product is shipped, news reports when a product is merely announced. When you review a product, you include some idea of estimated shipping cycles, and you say that a product isn't ready for market if it obviously isn't. And you try to mitigate the wrath of readers while bringing sensitive issues to light.

We *know* it's a compromise position. But the next Bill Gates is out there developing a revolutionary product with our prepaid advance orders. As industry advocates, we have to fuel that entrepreneurial effort.

— THE EDITORS

Changes your Model 100 into a totally different computer with capability you never thought possible.

Infoworld rated Lucid's performance "excellent"

PCSG says "Satisfaction Guaranteed or your money back within 30 days!"

LUCID© is here now. It is on a ROM cartridge that snaps into the compartment on the back of your Model 100. It takes no memory to load and no memory for operating overhead. That means you have the full 29.6k bytes free to store your data.

First, LUCID© is memory conserving. It will let you build a large spreadsheet—255 row by 126 column capacity. You build huge spreadsheets in your Model 100's RAM that could consume 80 to 100K on a desktop computer.

Secondly, LUCID© is fast. LUCID© is so rapid, a 36 column corporate financial statement took less than 4 seconds to calculate.

Thirdly, LUCID© has features you won't find in most other spreadsheets. For example, when you type a label (text) it will cross column boundaries; in other words when you type a label or title it will appear as you type it irrespective of column or width. LUCID© also allows you to set column widths individually, and of course LUCID© has insert row and insert columns, as well as other standard features. LUCID© even lets your formulas refer to cells in other spreadsheet files.

Further, LUCID© has what no other spreadsheet has: Cut, Copy, and Paste. It uses the same keys as Cut and Paste in TEXT, but here's the difference: it takes all the formulas with it when you paste and they all automatically recalculate with the entire sheet.

And here is what is really amazing. You can copy or cut from one spreadsheet and paste into another spreadsheet or even a TEXT file.

LUCID©supports all BASIC math functions as well as Log, sine, cosine, tangent, exponentiation and other sophisticated math functions.

LUCID© has so many features that you will say "this is what I need in a spreadsheet", such as automatic prompting of an incorrectly typed-in formula showing just where the mistake was made.

LUCID© has expanded "go to" functions that remember and produce a windowing capability.

But perhaps most remarkable is that LUCID© is not only a spreadsheet but a program generator as well. First, LUCID© lets you protect all cells against entry or change, and then unprotect just the cells you want for someone else to use as input fields.

LUCID© will not only process values, but text input as well so that the facts other than numbers can be responded to. LUCID© has the ability for you to refer in a formula to cells containing words. This feature combines with the capacity of doing "if then" statements that work by doing table lookups against even massive X/Y charts of text or numerical information. You can produce a program that responds to inputs with no programming knowledge whatsoever.

You can prepare a report section in your spreadsheet with instructions to your user for printout, and they can produce a personalized printout that responds to their input. All your formulas and tables that did the calculations and provided the facts are invisible to that user. LUCID© is useful for doctors for patient questionnaires, troubleshooting technicians, purchase clerks, people doing job quotes, stores for customer workups, insurance agents and anybody who needs to process specific facts and numbers to produce a report based on those responses.

LUCID© comes with a manual that explains not only the characteristics of LUCID©, but will train you how to use a spreadsheet even if you have never seen one before. You are shown how to do budgets, forecasts, breakeven analysis amortizations and many other types of personal and business reports and calculations.

User friendly is such an over-used term in this industry, but a typical comment has been "I have never seen a spreadsheet that does so much, and yet LUCID© is so much easier and faster to use."

LUCID© is a result of a most exhaustive developmental effort in which PCSG's objective was to develop a spreadsheet that was better than the state-of-the-art. We are so pleased because LUCID© provides for the Model 100 spreadsheet capability you cannot equal on a desktop computer.

LUCID© is, in our opinion and that of those who have examined it, a breakthrough. We sell it on a 30 day trial. If you are not completely satisfied, return it within 30 days for a full refund. Priced at $149.95, on snap-in ROM. MasterCard, Visa or COD.

© PCSG 1984

First with software for the Model 100

PORTABLE COMPUTER SUPPORT GROUP

1-214-351-0564

11035 Harry Hines Blvd., #207
Dallas, Texas 75229

THOUGHTS TO SQUIRREL AWAY

Two years ago this month one of Portable 100 magazine's first enthusiasts came calling. The Editorial staff was buzzing. Only a few weeks remained before the premier issue would make its debut.

This friendly man had traveled from New Hampshire with his wife on a motorcyle, taking the time to stop in Camden to share his excitement about Radio Shack's invention: the Model 100.

Nathaniel Ireland continues to write us with programing tips and listing ideas. His contribution below for Chipmunk owners is a timesaver when making file backups on disk. It features the diskdrive's LOAD ALL and SAVE ALL.

Prerequisites:

1. Clear random-access memory (RAM) of user files.
2. Format new copy disk.

Note: Disk to be copied will be referred to as disk one; new copy disk will be referred to as disk two.

Backup Procedure:

1. Place disk one in drive.
2. Press function key eight (F8) at the Chipmunk menu and type *DISK*.
3. Go to step five if you want to copy first level files.
4. Place cursor over chosen folder and press Enter. Continue this step until folder is reached, remembering its name.
5. Press F8 and type *MENU*. The screen displays Chipmunk menu.
6. Place cursor over BASIC, press F2 and type *LOAD*. The screen will display selected folder.
7. Press F1 and type *ALL*. File names will display at upper left of screen as they load to RAM.*
8. Press F8 and type *MENU* when drive stops (operating light will go out). Screen will return to Chipmunk menu with loaded files displayed.
9. Remove disk one from drive and replace with disk two.
10. Press F3 and type *SAVE* with cursor over BASIC on Chipmunk menu.
11. Answer the SAVE ALL question by pressing *y*.
12. Go to step 14 if these are first level files.
13. Press F4, type *FOLD* and name folder as it listed on disk one.
14. Press F3 and type *SAVE*. After files are saved to disk two, display returns to Chipmunk menu.
15. KILL all files in RAM.**
16. Remove disk two from drive and start with step one for new folder.

* If the folder contains many files or the files are large, the display may indicate an OUT OF MEMORY error. This is no problem. Note the last file on the Chipmunk menu and later selectively load and save the missing files.

**Each file must be killed individually Four keys need to be pressed for each deletion. A KILL ALL feature here would be handy — but probably dangerous elsewhere.

FORMER EDITOR RESPONDS: CHIPMUNKS ABOUND

It appears former Portable 100 editor John Mello's comparitive review article in the May issue was based on his seeing an older version of Holmes/Amtek's Chipmunk Disk Drive. Anyone who has seen one now would argue with his comments, and it isn't a difference in software releases since his errors would be the same regardless of the software version.

Regarding saving a disk file, placing the cursor over a file name and pressing Enter will load and execute, not save as implied. The second sentence compounds the error by indicating the same technique is used to load and run a program. For information value, pressing the F3 function key is used to save a program or file to disk.

The article reverses two functions: F6 lists the amount of free RAM, and F7 lists files held in RAM. This is an old function, available as a software modification from the file TELKEY in the SIG database long before it was included in the Chipmunk software.

The article also indicates it takes 29.63 seconds to save a 16.25K file, and 16.25 seconds to reload it. I suggest rechecking those times, or define how they were arrived at. I can save a 16.8K file in 8.5 seconds, allowing the disk to come to a full stop between first press of the F3 key for access, and the second press to actually SAVE the file. Reload time is 4.8 seconds.

Tony Anderson, 70506,1261
Assistant Sysop
Model 100 SIG on CompuServe

What CDOS version do you have? Mine says 3.0. And in version 3.0 programs can be loaded and run from disk by: placing the cursor over them and pressing Enter; and by using function key 2 (F2) to save files to disk, F6 to rename files, and F7 to format to a new disk.

The save and load times in the article referred to the time it took a BASIC program to save a 16K ASCII file by writing it to disk, not the time it takes CDOS to save a file.

I would add that the CDOS version I worked with (and still work with) does not correspond to the typeset and bound version of the documentation I received from Portable Computer Support Group (PCSG).

After more extensive use of the Chipmunk with Lucid, PCSG's spreadsheet ROM, I've found CDOS 3.0 doesn't interface smoothly with the program. The result is often a machine lock-up and a cold start. PCSG co-director Michael Stanford told me this problem is remedied in yet another version of CDOS, 3.2.

With all the versions of CDOS floating around, your confusion is understandable.

John Mello
Malden, MA

NO DANGLING MODIFIERS

Tandy portable users who already own the following Model 100 software by Radio Shack will be glad to learn the programs also will run on the Tandy 200. A Tandy marketing department spokesman offers the following modifications — then it's all systems go on the 200.

- Statistical Analysis (26-3825, $29.95) is a collection of software. Each program should be loaded into RAM individually and not coupled with other software in its package.
- Business Decisions (26-3832, $39.95) is the same as Statistical Analysis.

?? DO YOU PROGRAM BASIC ??

The ONLY BASIC DEBUGGER combined with a powerful TEXT EDITOR on plug-in ROM

Now for the Tandy 200 and Nec 8201A !!

Cleuseau

BASIC Inspector and Text Editor

● Search and replace ● overwrite mode ● append the paste buffer ● capitalize or lowercase a section of text ● count bytes/words/lines ● verify a file ● Compress a BASIC program, eliminating all unnecessary text. ● Renumber, move, copy program lines. ● Stop your program anywhere, anytime to trace exactly where you've been, without losing variables. ● uses no RAM memory.

● MANY, MANY MORE FEATURES!!! ●

Cleuseau is designed to let the beginning programmer avoid the pitfalls of BASIC programming while providing the advanced programmer the ease of ***Cleuseau's*** many shortcuts.

$95 plus $4 First Class or $15 Express Mail

***Cleuseau* + ROM2** in one ROM **$145**

VISA **CALL TO ORDER** MasterCard

Please specify for Model 100, Nec 8201A or Tandy 200.

Circle 44 on Reader Service Card

The ROM Experts . . .
Our software and yours in ROM for the Model 100, Nec 8201A and Tandy 200.

Polar Engineering and Consulting
P.O. Box 7188, Nikiski, Alaska 99635 (907) 776-5529

•Personal Finance (26-3822, $19.95) is equipped with two sets of instructions. Follow the 16K directions.

•Calculator (26-3827, $19.95) changes the BASIC function key definitions after execution. Restore the default assignments with two statements: CALL 28192,0,28357 and CALL 33747.

NULL MODEM MYSTERY REVEALED

Ever try to get a straight answer to the question: What's a null modem? I'm not a programer or a hacker but do a lot of transferring to a Kaypro 2 or to a printer.

Fran Drake
Michigan

There are two types of serial (RS-232) devices: Data Communications Equipment (DCE) such as Kaypro s and Model 100 s, and Data Terminal Equipment (DTE) such as modems and serial peripherals.

The standard serial connector found on Tandy laptops, desktops and peripherals is a DB-25. DCE devices send information on pin two of this connector and receive information on pin three. DTE devices talk *on pin two and* listen *on pin three. Since most communications applications have a controlling (DCE) device using a noncontrolling (DTE) device, wiring these together with a straight cable allows data transfer.*

However, when two DCE devices such as the Tandy 200 and Kaypro are connected with a straight cable, both devices are trying to send information on pin two and receive on pin three: No communication can take place.

The null-modem cable reverses pins two and three. Each DCE device thinks it's working with a DTE unit, enabling communication.

For more detail about null modems and information on how to construct one, see Portable 100, September 1983.—Ed.

PRINTED ON A DARE

I recently had an experience which I doubt you'll print. My Radio Shack salesman sold me a $79 service contract. It wasn't a bad investment, considering how important my Model 100 is to me.

But two weeks later I started having some real problems: no power on power-up and inadvertant computer-caused cold starts.

My Radio Shack Service Center thought the problem was in the main logic. The bill would have been about $150.00, so my investment really paid off — or so I thought.

The unit was returned to me a day later at no charge. However taped to the outside was a little plastic bag containing Traveling Software's T-Back (the 8K chip that I'd bought for $60.00 a year ago) and a pink seal stating "breaking this seal voids your service contract."

I'm used to having 32K in my machine. Many of my files are on T-Back, which requires memory to work. I could replace the chip with one from Radio Shack for $119.00 plus $15.00 installation — one fourth the cost of a new 24K 100 and more than twice the cost of a new chip from my previous supplier. Should I void my warranty or learn to live with 24K?

Name withheld on request
Costa Mesa, CA

We are sympathetic to your dilemma — but almost didn't print your letter. Our policy is to print only signed letters. Your doubting we'd run it was too much of a temptation.

Your experience will serve to warn others: Tandy warranties cover only Tandy products.—Ed.

IN THE FAMILY WAY

My wife Gail and I trust each other to make our daily financial decisions without a lot of consultation. However, cash outlays of hundreds of dollars are not daily events in our household. So when I wanted to buy a Model 100 I prepared a strong case.

"You could catalog your coupons so you'd always know which ones you have," I suggested.

"I already know which coupons I have. I'm the one who cuts them out of the paper!" was her reply.

In the end she bought my argument on the basis of my needs at work, told me to keep my computer to myself, and not complicate her life with the pursuit of technology. Gail also voiced concern about not seeing me until I tired of my "new toy." She's a perceptive person.

So I was surprised a few months later when Gail suggested a unique use for our 100. We were then expecting our second child.

Gail recalled that during her first labor, telling me when her contractions started and stopped interfered with her concentration. She challenged me to program the computer to do all the recording with a touch of a single key. She suggested this would be more accurate, less distracting for her and would allow me to be more attentive.

The listing below is the result of Gail's suggestion. The little computer was with us through three false starts, and in the end was of questionable utility only because her labor second time around lasted four hours. By the time we recorded the first few contractions, it was time to go to the hospital.

But it's our hope this program might be of help to other expectant parents. Also, don't forget to input relevant phone numbers in the address file!

I've neglected to include a "close" statement in the program. Also the program was modified to designate the start of contractions with the space bar and the end with the enter key — Space=Start, Enter=End.

```
 5 'Press Break to Stop
10 'labor pains
15 MAXFILES
20 OPEN "times.do" FOR
   APPEND AS 1
30 A$=INKEY$
35 B$=TIME
40 IF A$=" " THEN 30
50 IF A$=CHR$(32) THEN PRINT #1,
   B$; "Start":PRINT B$; "Start"
60 IF A$=CHR$(13) THEN PRINT #1,
   B$; "End":PRINT B$; "End"
70 GOTO 30
```

The Sirotnaks
E. Orange, NJ

U.S. Mail and Ma Bell aren't the only way you can address the editors of Portable 100/200. Letters to the Editor, subscription queries and article submissions are always welcome via electronic mail. Readers on CompuServe should send EasyPlex Email to PPN 76703,372. People using The Source can reach us via SourceMail at STT904. — Ed.

USER GROUPS

We're tipping our hand. Here's the list of user groups we've discovered across the country. If your group isn't listed here, please let us know. Group information has been requested by laptop users in San Diego, Roanoke and Tuscaloosa.

CALIFORNIA

Abacus Online
Contact: Richard Hanson
(415) 932-8856 or
(415) 939-1246 (BBS)

Bay Area NEC/Users Group
P.O. Box 2916
Oakland, CA 94609

Danville Tigers
78 Larkstone Ct.
Danville, CA 94526
Contact: Bill Templeton, CIS 75655,1056
(415) 820-3777

(continued on page 44)

The Ultimate Battery System for your Portable Computer

Prairie Power™ introduces a brand new battery, charger and carrying case that greatly extends the power and efficiency for lap-top computers such as the **Tandy 100 & 200, NEC 8201, 8401, Apple IIc, Epson and Sord.**

The heart of the **Prairie Power** sytem is the lightweight rechargeable battery pack that can, for example, power the Tandy 200 up to 160 hours. By comparison, its "AA's" last a mere 10-15 hours. By the time a Tandy 100 has used up 10 packs of "AA's" **Prairie Power** is ready for its first charge (180 hrs.) Our new battery system can even power the Apple IIc for 8 hours and contains a sophisticated circuit to warn when the battery is low.

The new two--step charger simplifies recharging by showing when the battery is charged and then switches to standby. You always know the battery is charged and ready-to-go, whether for emergencies or long trips on the road. Besides the assuredness and efficiency of a powerful battery system, **Prairie Power** will pay for itself over the cost of "AA's".

Best of all, the battery system and computer are housed in a handsome water-resistant padded Cordura case protected by support panels and thick foam inserts that hold computer, battery, charger, cables and accessories. A padded pocket can also hold a flat-panel screen, small recorder or 3.5 "drive and manuals. **Call our toll-free number today!**

A Compact System!

The Prairie Power system fits under any airline seat and measures only (17x13x5"). With Tandy 100, battery, case and charger, weight is only 12 lbs. Apple IIc system weighs 20 lbs. Battery is fully rechargeable, sealed, maintenance free, useable in any position and air transportable. Never again worry over shelf-worn "AA's"

PRAIRIE POWER SYSTEMS, INC.™

Prairie Power Systems, Inc.
768 Twelve Oaks Center
15500 Wayzata Blvd,
Wayzata, MN 612-475-1945

Model 10 Battery ($59.95) Cable ($19.95)
Two-Step Charger ($55.95) Cordura Case ($99.95)
M/C, Visa, Check, MO $US only.

Total System Price $169.95*

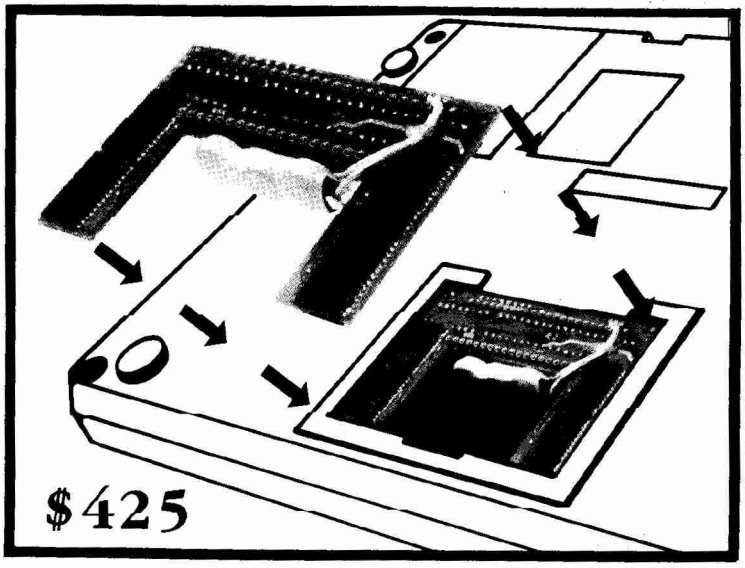
Toll-free1-800-435-8721

**Apple 12-volt system ($249.95) Freight extra ($6.00)*

EXPAND YOUR MODEL 100 TO

128K RAM

IN 60 SECONDS



This 96K expansion gives you four RAM banks of 32K each. All low-power (CMOS).

- Fits into bottom compartment with original cover.
- ROM socket is left free for *Lucid, Write ROM* or *Disk + ROM*
- The system bus is left free (for Holmes portable disk drive or the DVI)
- Has its own NICAD battery, rechargeable from the Model 100 (guaranteed one year)
- Software included, transfers from bank to bank. Works like main menu!
- Includes powerful RAM BASIC that allows any BASIC program to store or access data in any other bank.

30 DAY TRIAL
NO OBLIGATION

Manufactured

Cryptronics, Inc.

1(214)351-0564

PORTABLE COMPUTER SUPPORT GROUP

11035 Harry Hines Blvd. No. 207, Dallas, Tx. 75229

VISA / MASTER CARD / C.O.D.

Give your Model 100

128K RAM

Installs as easily as plugging in a socket

PCSG says: Satisfaction guaranteed or your money back within 30 days

As amazing as it seems you can upgrade your Model 100 to 128K of RAM in just 60 seconds.

It comes to you right out of the box looking just like the picture. You just open the little compartment on the back of your Model 100 with a quarter and it just pushes right into place. You can then put the cover back in its place.

You then have 4 banks of RAM of 32K each. The additional two banks also work just like your Main Menu.

You just push a function key and you look at the second bank. Push it again and you are in bank three. Push it again and you are in bank four. Press it one more time and you are back to your original bank.

It has its own built-in NiCad battery that recharges right from the Model 100 and its guaranteed for a full year.

What is really great is that you can copy a file from one bank to another with just a function key.

Each bank is like having another Model 100, and all the built-in programs as well as any snap-in ROM programs appear in all three banks and work the same way. Your widebar cursor moves from file to file and you access any file or run any program just by pressing ENTER.

What lets you copy any file from one bank to another is a snap in ROM from PCSG called RAM +, that comes at no extra charge. It just pushes right into the little socket in that same compartment with the 96K expansion unit.

Not only does this firmware let you copy a file from bank to bank, but you can make a copy of any file within the same bank instantly with a function key. Great for Lucid spreadsheets!

Copy a file from bank to bank with a function key

You can also rename a file, or kill any file with just a function key. Plus you can do a whole lot of other useful things like setting the date, day and time with function key ease. You even have a function key that lets you use non-Radio Shack printers without having to make those tricky dipswitch settings.

RAM + lets you cold start any one of your banks without affecting the other two. That means that anytime you want you can clean out a bank's entire memory, but leave intact all the files in the other banks.

What is also fantastic is that you don't have to have the ROM in place to use the additional RAM. Whenever you take out the snap-in ROM it leaves behind a tiny machine code program that lets you switch from bank to bank just by pressing ENTER.

This lets you use your ROM socket to snap-in other ROMS like LUCID spreadsheet, WRITE ROM text processor, or DISK + ROM file transfer program, and use them in any or all three banks. All of these, by the way, are available from PCSG.

When you are ready to copy a file from one bank to another or use any of the other fantastic functions we talked about you can just snap the RAM + ROM back into place.

Everybody that has this 128K system in their Model 100 is so excited, because it gives them three times the capacity and all banks work just like the Main Menu.

And what has made a lot of people happy is that the system bus, located in the same compartment, is left free for you to plug in a DVI or the Holmes Engineering/PCSG portable disk drive.

The ability to copy a file from bank to bank instantly with a function key, plus all of the other features make this RAM extension truly an engineering masterpiece.

Some people hesitate when they think of installing something, and then others are skeptical that any additional hardware could be as good as the Model 100 itself. That's why we sell these 96K expansions on a 30 day trial. Simply return it within 30 days for a full refund if you are not satisfied. Priced at $425. MC VISA COD.

1(214)351-0564

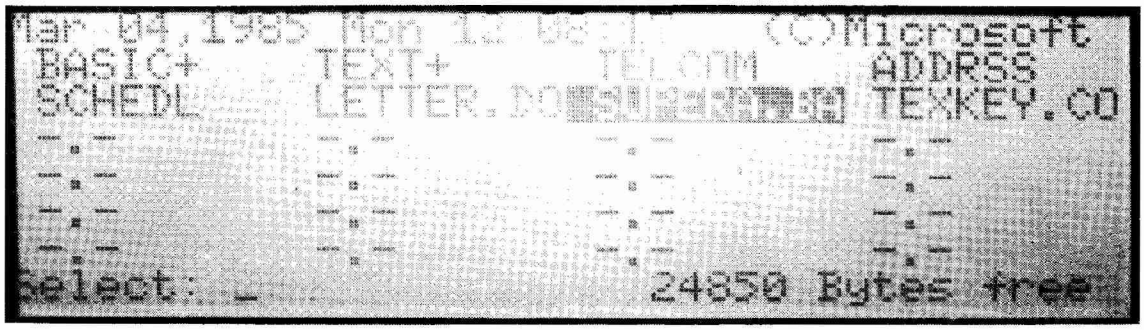
PORTABLE COMPUTER SUPPORT GROUP

11035 Harry Hines Blvd. No. 207, Dallas, Tx. 75229

VISA / MASTER CARD / C.O.D.

Circle 33 on Reader Service Card

The Model 300 Is Here... You Already Own It!



SUPERA: Like Getting A Whole New Computer

In January 1983, Micro Demon introduced PRO AID. Suddenly Model 100 users found that their computer had capabilities far beyond their expectations. In his InfoWorld review of PRO AID, Reviewer Greg Springer, anticipating the announcement of the Model 200, wrote,

"PRO AID adds enough new capabilities to the current model that the wait for upgraded portability is made much easier and maybe even unnecessary."

Well, the Model 200 is here. But so is SUPERA! SUPERA takes a giant step past PRO AID, and adds a multitude of powerful new features to the Model 100, making it into the computer it was meant to be.

Once it is loaded, SUPERA works transparently to you and your programs. If it weren't for all the wonderful things it does, you would never even know it was there. If you want to remove it, SUPERA is as easy to take out as KILLing a BASIC program.

Unique Format

SUPERA loads and runs as if it were a BASIC program (it's really all machine language). Because of this unique format, SUPERA is compatible with most other software and hardware. It also only requires 4.3K of memory.

With SUPERA installed, every facet of your computer suddenly takes on an aura of new-found power.

In Text

While in TEXT you can

- Use a really fast and flexible search and replace function.
- Turn on a special type-over mode in which typed characters replace text instead of being inserted.
- Read a second file while editing a first.
- Use control keys to delete words and lines, to change the case of the character under the cursor, and to activate the paste key.
- Cause the display to scroll slowly up or down a line at a time.
- Redefine special keys to act as SHIFTed keys, control keys, or graphics characters.
- Turn the computer off without losing your place.
- Access special HELP files.
- Use 26 new macro function keys.

and more!

All of Supera's editing features become available whenever you enter EDIT mode to edit a BASIC program.

Super Function Keys

A great deal of SUPERA's power comes from its 26 macro function keys. These easy to define keys can be used in TEXT, TELCOM and BASIC. Each key generally defines a string of 14 characters, but in both BASIC and TEXT several keys can be concatenated into one so as to provide longer keys. The power of these function keys is hard to imagine until you try them.

In TEXT they can provide you with much more than just easy entry of boiler-plate strings. They can also be defined to automatically carry out complicated editing sequences.

In TELCOM these keys can save you money while accessing a data base such as Compuserve. They also save you the trouble of remembering such things as passwords, ID numbers, and special commands.

In BASIC use the keys to enter BASIC commands, and to facillitate typing in programs, to name just a few applications.

Moreover, SUPERA allows you to save and load entire sets of function keys by a single control key action. Thus you might keep a set of keys called TEXKEY.CO handy to use in TEXT, another keyset for BASIC, and yet another for TELCOM.

In BASIC

You get the 26 function keys, and also

- Single stroke access to the built-in software such as TEXT and TELCOM
- Automatic Line Numbers
- Control key activation of selected BASIC commands
- You can redefine special keys

In Menu

You can use control keys to kill and rename files.

Calculator Mode

From BASIC you can enter an entirely new mode called Calculator mode. While in this mode you can quickly and easily evaluate expressions. Calculator mode also provides several new BASIC functions.

Better Than PRO AID

It's true that PRO AID was a significant enhancement to the Model 100, but SUPERA goes far beyond it. In a message on the Compuserve Model 100 SIG, system operator Dave Thomas said,

"Now with SUPERA, the original PRO AID has been enhanced beyond belief... If there is a single, more useful utility on the market for the Model 100 than SUPERA, I haven't heard of it and t'would boggle my mind if t'was!!"

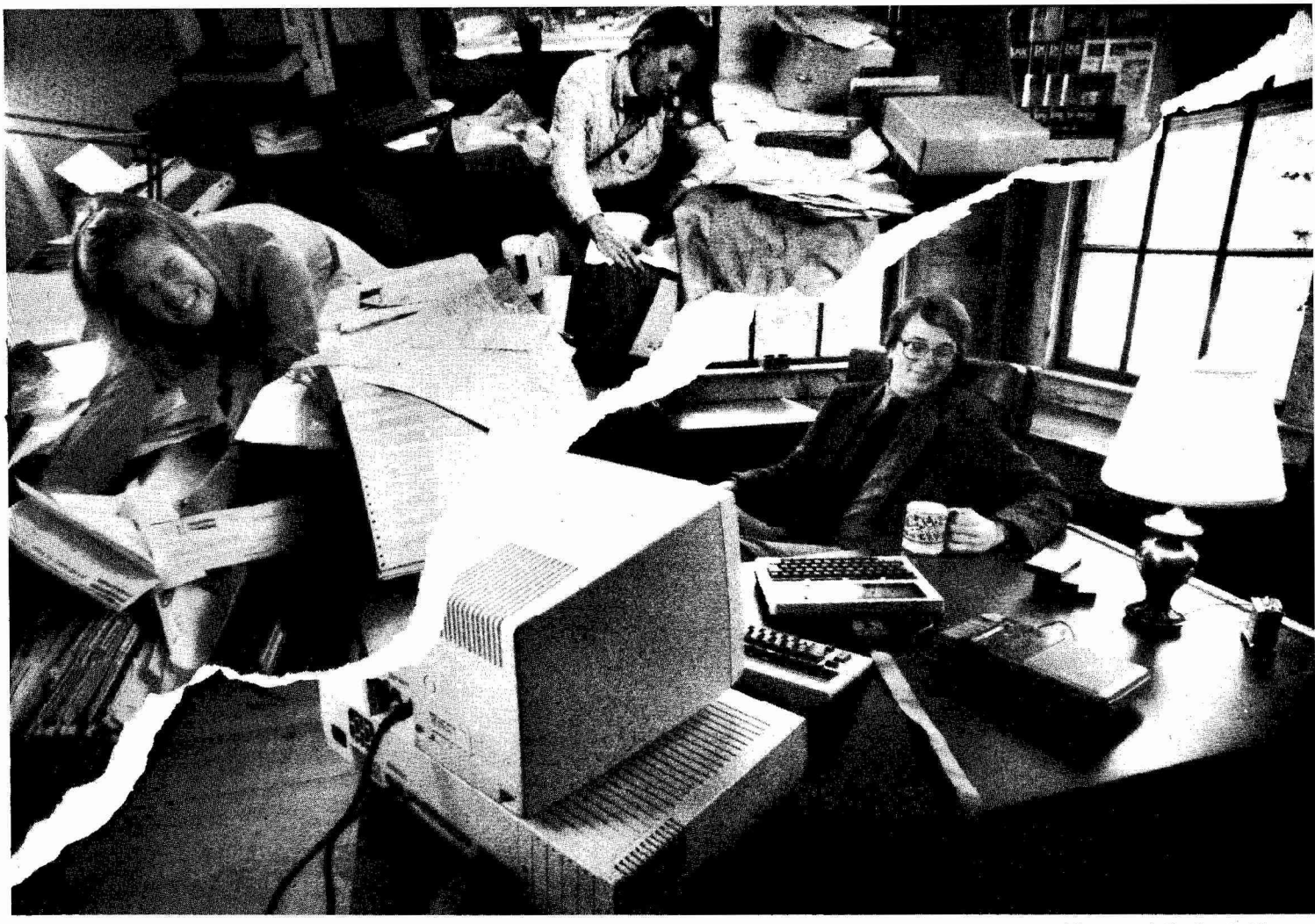
TEX PRO For Word Processing

TEX PRO consists of ALL the TEXT editing features of SUPERA, uses only 2.8K of memory, and sells for just $49.95. It may be the choice of those who seldom use their Model 100 except for word processing, and don't need all the additional power of SUPERA.

MICRO DEMON, INC.

Circle 26 on Reader Service Card

For more information or to order, write to Micro Demon, Inc., P.O. Box 50162, Columbia, SC 29250. Or call 803-733-0980 anytime. SUPERA $79.95, TEX PRO $49.95. Add $3.00 for shipping. Visa and Mastercard are welcome.



Photograph Benjamin Magro

Labels on the *Run*

By Richard Ramella

Sentenced to a life of running mailing labels would be punishment worse than Alcatraz. The chore is never ending and deathly boring. Endless, a short BASIC program, solves the problem by eliminating much of the tedium. No need to be hampered by the Model 100's byte limitations either. All is needed is an 8 kilobyte (K) machine and a line printer. Endless line prints thousands of addresses to an unbroken list of labels — all in a single program run. It not only removes the need for loading address files from cassette tape but line inputs an address at a time printing the result. The program continues to open

(continued on page 14)

Continuous Transfer

By Peter Petrakis

There must be an easier way to make a living. As any freelancer knows, our lives are hardly the days of wine and roses — but rather, feast or famine. This lifestyle instills a fear of saying *no* to any assignment, regardless of how busy we already may be. The dry periods are hard to forget. Consequently when the heat is on, there's a heck of a lot of writing and typing to be done. To keep up, a fast typist was hired to input on the Model 100. But it soon became apparent the 100's 32 kilobyte (K) of RAM fills quickly. We found ourselves constantly downloading files in batches to a desk-top computer to make room in the 100's memory.

(continued on page 58)

and close cassette files, each named MAIL, until it reaches the code telling it to stop.

Tape length in the cassette is Endless' only restricter. For example, a 10-minute side of a Radio Shack 20-minute data tape will hold far more material than an 8K Model 100. And standard single-wide mailing labels should be used. Sheets containing several labels in horizontal rows will be wasted by the program.

Once Endless has been saved in the computer, the next step is to put the mailing list on tape. Fill less than half your system's memory and then transfer it to a cassette text file. This leaves enough memory for saving what is on tape to a test text file as a safety check. Bad loads occur more often when saving long text files than when saving BASIC programs.

Key in or CLOAD the program, putting it in a BASIC file by typing SAVE "ENDLS.BA". The rest of the procedure is listed below in numbered steps for easy reference.

1. Create a document file called MAIL. To do this go to menu mode, put the cursor over the word TEXT, hit Enter and answer the File to edit? prompt by typing MAIL.

2. Type the following two addresses into the file. Each place there's a < hit Enter, not the symbol. It's there as a gauge for required spacing.

Jim Adams<
123 Mowo Way<
Ludece, OP 23444<
<

```
100 REM * ENDLESS: A Mail List Printer *
110 REM * TRS-80 Model 100 8K / Richard Ramella
120 MAXFILES=1
130 CLS: PRINT "Program has begun..."
140 OPEN "CAS:MAIL.DO" FOR INPUT AS 1
150 FOR X=1 TO 4
160 IF EOF(1) THEN CLOSE: GOTO 140
170 LINE INPUT #1,A$(X)
180 IF A$(X)="-30-" THEN CLOSE: PRINT "Final
    file printed. Program ends.": END
190 PRINT A$(X)
200 IF X<4 THEN LPRINT A$(X)
210 NEXT X
220 LPRINT
230 LPRINT
240 LPRINT
250 GOTO 150
```

Eloise Baker<
234 Hurdy Ave.<
Melonville, CV 34567<
<

3. Put a tape in the cassette player. Be sure to advance it past the leader and note the counter number on the cassette. Depress the record and play buttons simultaneously until they lock.

4. Press F3 on the keyboard and answer the Save to: prompt by typing MAIL. The file MAIL.DO will load onto the tape.

5. When the load is complete, rewind the tape to the start of the file and press the play button on the cassette into a locking position.

6. Press F8 on the keyboard to exit.

7. In menu mode, put the cursor over the word TEXT and press Enter.

8. Answer the File to edit? prompt by typing TEST.

9. Press key F2 and answer the Load from: prompt by typing MAIL. If the file loads correctly it's safely on tape. Bring up the cassette play button but leave the tape in its current position to receive a second MAIL.DO file.

10. Go to command mode by pressing F8. Type KILL"TEST.DO" and hit Enter twice to return to menu mode.

11. Put the cursor over MAIL.DO.

12. Now erase all material in the file. To do this press F7, hold down the Ctrl key and press the down-arrow key at the same time, then press F6.

13. Now type these new addresses into the MAIL.DO file. At the end is -30-, a journalistic symbol for the end of a story. This symbol figures in the program Endless. Don't forget to hit Enter at each <.

Judy Yalewski<
2459 Utrecht Ave.<
Planar, LN 34555<
<
Harvey Zyman<
511 Cliffhanger Dr.<
Wanda, AQ 94332<
<
-30-<

14. Depress the play-record buttons on the cassette.

15. Do steps four through 10 again.

Now there are two text files, both named MAIL, saved in sequence on the cassette tape.

Rewind the cassette tape containing the files to its beginning. Depress the play button and turn on the line printer. Remember: Endless is filed away as ENDLS.BA. In command mode, type RUN"ENDLS.BA" and discover what happens.

Whether four addresses have been saved in two files as in this example, or 5,000 addresses in 50 sequential files all named MAIL.DO, the outcome is a one-run line printing of everything saved. Now go take a coffee break while the Model 100 does the work. □

Endless can be used by Model 100 users with even a beginning level of programing expertise. For a program listing to aid in organizing your mailing list prior to doing a label run, see Magnalist in the May issue, page 19. — Ed.

Please help us rate this article's value. If you've found it very valuable, circle 110 on the reader service card. If it was moderately valuable, circle 111—and if it wasn't valuable to you, circle 112.

USE YOUR DESKTOP COMPUTER AS A DISK DRIVE FOR YOUR M-100.

Try *Disk+* for 30 days. If you aren't as excited as we are, return it for a full refund.

When we designed *Disk+* we did it out of necessity. We wanted a way that we could just connect a Model 100 to our desktop computer with a cable and save files onto the desktop's disk drive. We wanted it to be so simple to use it would be self-explanatory.

Picture this. *Disk+* comes to you on a Snap-in ROM and a diskette for your desktop. You take a quarter and open the little compartment on the back of your Model 100. Then you just press the ROM into the socket. *Disk+* appears on your main menu just like a built-in.

You connect your Model 100 to your other computer using an RS232 cable (available from PCSG for $40).

You just place the *Disk+* diskette into the desktop's drive and turn on the computer. It powers up automatically and says "awaiting command" on your desktop's screen. Then you just put the widebar cursor on the Model 100 main menu on *Disk+* and press ENTER. You are shown your RAM files arranged just like the main menu.

To save a file to your other system's disk drive, you just move the widebar cursor to the file you want to save and press ENTER. It is saved instantly with no further action.

To look at the disk directory, you just press a function key on your Model 100. You see immediately the disk directory on your Model 100 screen, and it is arranged just like your Model 100's main menu.

To load a file from the diskette to your Model 100, you just move the widebar cursor to the file and press ENTER. The file is transferred to your Model 100's RAM instantly. You can press F8 and go back to the main menu, and the file you loaded from diskette is there, ready to use.

It is so nice to be able to keep your documents, programs (both BASIC and machine code) and *Lucid* spreadsheet files on the diskette, and bring them back when you need them. All files are ready to run or use with no changes or protocol by you.

If you have access to a desktop computer and don't have *Disk+*, then evidently we have done a poor job telling you about it.

All files and programs that you load or save, go over and come back exactly as they are supposed to be because of full error checking. This guaranteed integrity is really a comfort. *Disk+* is wonderful in so many other ways. For example, you can do a "save all" of all your RAM files with just a touch of a function key. That group of files is saved on the diskette under a single filename with a .SD (for subdirectory) extension. Any time you want, you can bring back all those files at once, or just one or two if you like, again with one-button ease.

Disk+ takes up no RAM. That's zero bytes either for storing the program or for operating overhead.

What really excites most *Disk+* users is text file cross compatibility. Your Model 100's text files are usable on your desktop computer, and your desktop's text files become Model 100 text files.

This means you can write something on your Model 100, and with *Disk+* transfer it instantly to your desktop and start using it right away on your bigger computer. Or the way we like to work is to type in a document on the desktop computer and then transfer it to our Model 100 with *Disk+*. Then we print out the document, beautifully formatted, using WRITE ROM.

Disk+ works with just about every micro sold, from IBM PC and its clones, to all Radio Shack computers (yes, all), to Apple II, Kaypro, Epson and most CPM. Just ask us. More than likely, your computer is supported.

Incidentally, hundreds of Model 100 owners have gone to their Radio Shack stores and bought a color computer because it is so low priced, and with *Disk+* they have an inexpensive disk drive.

And if that weren't enough, how about this: *Disk+* also provides cross-compatibility between different computers like IBM, Apple or the Model 4 using the Model 100 as the intermediary device. Quite a feature!

The snap-in ROM is really great because you can use other ROMs like *Lucid* or WRITE ROM. They snap in and out as easily as an Atari game cartridge and you never lose your files in RAM.

Anyone who ever uses *Disk+* simply can't do without it. But so many times we have had new users call us and say, "Wow! I had no idea when I ordered it that *Disk+* would be so fantastic. I just couldn't believe that I could use my desktop computer's disk drive with my Model 100 just like it is another main menu."

That's why we sell *Disk+* on a thirty-day trial. If you aren't completely satisfied, return it within thirty days for a full refund. Priced at $149.95 on Snap-in ROM. MasterCard, Visa or COD.

1-214-351-0564

PORTABLE COMPUTER SUPPORT GROUP

11035 Harry Hines Blvd., #207, Dallas, Texas 75229 • 1(214) 351-0564

PCSG provides hotline software support for the Model 100. Call us at 1-214-351-0564

© PCSG 1085

Circle 36 on Reader Service Card

TRAVELING'S ROM CHIP GOING PLACES

Powerful. Traveling Software's new Ultimate ROM bundles three of its hottest products into one plug-in chip: T-Base, T-Writer and Idea. It's available for both the Model 100 and the NEC PC-8201A with an introductory price of $199.95 — $29.90 less than the total cost of the software sold separately on cassette.

T-Base ($99.95 on cassette) provides a data-base manager and report writer. T Writer ($49.95) is a fast, efficient word processor. Idea ($79.95) is a complete outline processor. ROM and cassette versions of each software are identical, says Traveling Software president Mark Eppley, except for performance improvements characteristic of ROM-based applications.

The Ultimate ROM comprises 32K of software in a single read-only memory (ROM) chip. It uses only random-access memory (RAM) for a short configuration file.

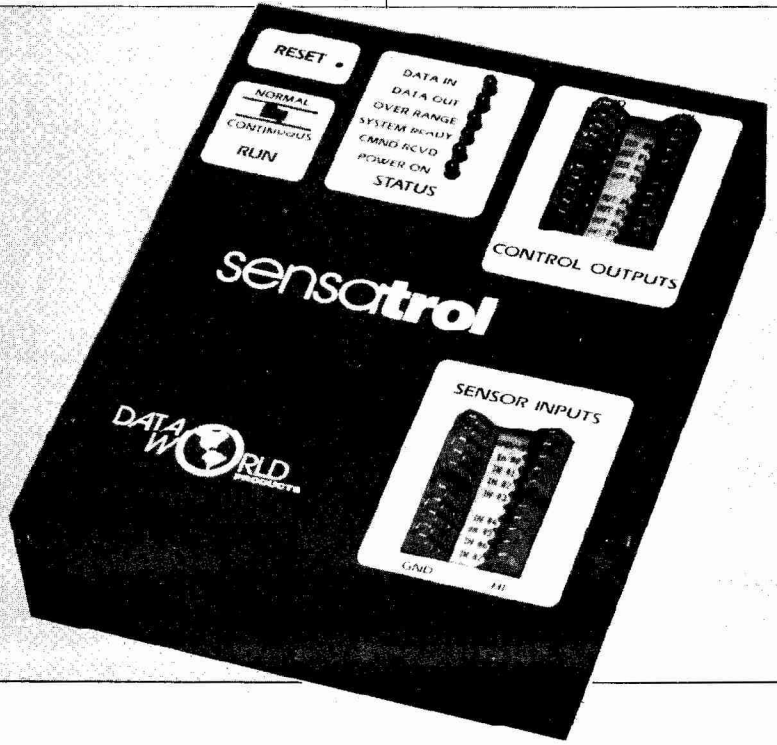
Display expansion is a reality with another Traveling Software novelty: T-View 80. The software, for both 100 and NEC users, allows the 40-column to display 60 columns of text, with sideways scrolling for a full 80-column screen.

T-View offers three utilities: TEXT-80 to view document files in full-screen mode, ENTRY-80 to allow 80-column text entry and editing, and TELCOM-80 to provide full-screen telecommunications. The entire utility occupies less than 4K of RAM.

The company hasn't forgotten Tandy 200 owners either. Four of Traveling Software's programs have been revised for the 200: T-Base, T-Writer, Idea and T-Backup. All are functionally identical to the Model 100 versions, plus the attraction of full use of the 200's larger display.

Contact Traveling Software, 11050 Fifth Ave. NE, Seattle, WA 98125, (800) 343-8080.

Circle 101 on Reader Service Card



Weather Watch

Data World Products introduces a general purpose real-world interface for the Model 100. The Sensatrol ($395) can be used for environmental monitoring and energy control via high resolution AC/DC sensory inputs.

The Sensatrol attaches to the computer's RS-232C serial port. Commands are passed to the device as ASCII characters. Four-conductor wire can be used to connect many Sensatrol devices into a distributed sensory network. Specialized sensor units are sold separately for the Sensatrol.

Model 100 software for data monitoring and logging is available from Data World Products, as well as various applications packages such as weather reporting and analysis. Contact Data World Products, Box 33, Francestown, NH 30343, (603) 558-3746.

Circle 102 on Reader Service Card

DIAL 1 (800) 732-5012 TO ORDER

MORE MEMORY

FOR YOUR TANDY 200 OR MODEL 100

NEW—TANDY 200
24K Expansion Modules only $149

Expand your computer's memory in less than 5 minutes and save over $100 on each expansion module.

Take a dime and pop open the hatch, plug-in one or two of our 24K expansion modules, and increase your memory up to 72K.

Do you care about quality?

Whether you are writing a letter at home or projecting the corporate sales—the reliability of your memory is paramount. Purple Computing's 24K modules are designed specifically for the TANDY 200 and use the highest quality components.

- Uses three HITACHI HM6264FLP-12/15—the lowest power and most reliable memory chips available.
- Pins are made specifically for the sockets used in the TANDY 200. Thick, round pins can damage the sockets.

NEW LOW PRICE—MODEL 100 or PC-8201A
8K Expansion Modules $35

Expand your computer's memory with our most popular product
Tens of thousands sold. Now you can do-it-yourself and save even more than before. Only $35 each or 3 for $99.
You get the same high quality part and great service now at reduced prices.

- Easy to follow installation instructions included.
- 30-day absolute satisfaction money back guarantee.
- 2-year replacement warranty.

Tandy 200 24K Expansion Modules $149 (#T200R)
Model 100 8K Expansion Modules $35 (#M1008K)
PC-8201A 8K Expansion Modules $35 (#NEC8K)

Ask about our quantity prices.

It's Easy To Order By Phone—Just Call
1 (800) 732-5012 TOLL FREE.
Orders only (8am.-5pm. PST)
(805) 987-4788
For orders in California and for Customer Service

FREE SHIPPING, HANDLING, AND INSURANCE
for Cont. USA. Ordered today—shipped tomorrow UPS. 30-day total satisfaction, money back guarantee. We honor Visa, M/C, AmExp, and Money Orders. Checks held 3 weeks. California residents add 6% tax.

In a hurry? Ask for UPS BLUE (2-day air) only $4/order or UPS RED (1-day air) only $10/order.

PURPLE COMPUTING

nstitution Ave., Camarillo, CA 93010

Circle 49 on Reader Service Card

*TANDY 200 is a trademark of TANDY CORP.

Good Things in a Small Package

The SLP — Super Little Printer — is Axiom's newest near-letter-quality printer. The SLP's focal-plane printhead uses straight pins for high-accuracy printing.

Priced at $299, SLP features 50 cps print speed in draft mode and 25 cps in near letter-quality. Superscripts, subscripts, underlining and dot graphics are supported.

The printer has a detachable tractor feed and offers a choice of parallel or serial interfaces.

Contact Axiom Corporation, 1014 Griswold Ave., San Fernando, CA 91340, (818) 365-9521.

Circle 103 on Reader Service Card

Easy as ALGOL, BASIC, C

Your laptop can become C literate. A complete C compiler for the Model 100, Tandy 200 and NEC PC-8201A has been released by Business Utility Software. Several versions of this high-level computer language are available.

The simplest versions, C*100 and C*200 ($49 each), use a cassette recorder as a compiler aide. C*100/DVI and C*200/DVI ($59) use the Radio Shack Disk/Video Interface. Other implementations use the TRS-80 Model III/4 or TRS-80 Model II/12 to assist in C source code compilation.

Most source code used in C*100 will compile on UNIX and XENIX systems. Bit fields, doubles and parameterized definitions are not implemented.

Readers who want to parley in C should contact Business Utility Software, 109 Minna, No. 423, San Francisco, CA 94105, (415) 397-2900.

Circle 104 on Reader Service Card

Cosmo Software

Going overseas? Your laptop can help you speak to the natives. White (R&D) Consultants has produced two foreign language teaching programs for the Model 100: French Tutor and German Tutor. The 500-word dictionary drills students in foreign language grammar and vocabulary.

Each program sells for $29.95 through White (R&D) Consultants, 277 Little Stonegate, Cary, IL 60013.

Circle 105 on Reader Service Card

Let Your Modem Do the Walking

Next time you reach for the telephone directory — reach for your computer instead, and the Instant Yellow Page Service. The online data base contains every yellow page entry in the United States.

Over six million listings are available for downloading and printing. The monthly subscription is $15, with a $1.00 per minute connect time charge and a fee of ten cents for each item accessed. Subscription information is available through Instant Yellow Page Service, P.O. Box 27347, Omaha, NE 68127, (402) 331-7169.

Circle 106 on Reader Service Card

Paramount Word Processing

Paramount Marketing enters the word processing arena with The Model 100 Printer ($29.95). The cassette-based machine-language package features automatic use with any parallel or serial printer connected to the Model 100.

The Model 100 Printer supports pixel page plotting, selectable top or bottom numbering, and adjustable margins, page lengths and spacing. A form feed may be sent directly from the keyboard, useful for printers without a control panel.

Interested readers can contact Paramount Marketing, Box 14123, Tallahasse, FL 32317, (904) 656-1867.

Circle 107 on Reader Service Card

PCSG Promotes Overbyte

A 96K RAM expansion module is available from Portable Computer Support Group of Dallas.

PCSG's $425 plug-in memory module adds three 32K banks of RAM to the Model 100. For users who have augmented their 100s' internal memory to the 32K maximum, the unit expands total RAM to 128K.

Bundled with the memory board is RAM Plus, a PCSG ROM that provides bank-switching functions and a convenient means for users to transfer programs and data files from one memory bank to another.

According to PCSG, the memory module's built-in nickel-cadmium (nicad) battery recharges from the Model 100. The battery is guaranteed for one year from the date of purchase.

The PCSG 96K RAM is sold with a 30-day full refund policy.

Contact Portable Computer Support Group, 11035 Harry Hines Blvd., Dallas, TX 75229, (214) 351-0564. □

Circle 108 on Reader Service Card

We've done it again!!!

More super software for your Model 100, Tandy 200 & NEC PC8201A!

MEN-U-TILITY

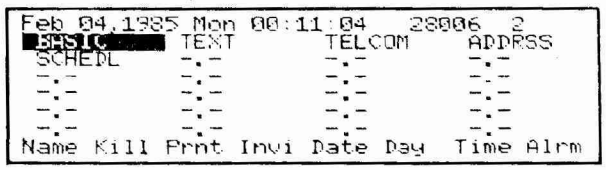
Men-u-tility is a powerful new utility for your Model 100. Once installed it is completely automatic and comes up when ever you would normally return to the main menu. As you move the cursor bar over the files, the length of each file is instantly displayed in the upper right corner. Men-u-tility adds 8 function keys to your main menu. You can kill files, rename files, make files invisible, set the day, date and time without ever leaving the menu.

Men-u-tility is also a print formatter. With F3, you can print any .DO file to your printer and you decide the right and left margins, top and bottom margins and page length! F8 sets an alarm that will go off no matter what mode you are in, BASIC, TEXT, TELCOM, etc.

If you have the Disk Video Interface (not required), the menu will appear on whatever screen you are using.

Men-u-tility only requires 1.8K of RAM and won't conflict with your other machine language programs.(100)

$24.95



LET'S PLAY MONOPOLY*

It's you against the computer and the computer is a tough competitor. The computer makes all its own decisions. Super fast machine language graphics display the whole board at all times. You can tell at a glance who owns what property and the number of houses on each. It never takes more than 1 or 2 seconds for the computer to decide what to do. The computer is such a good player that you'll be lucky if you even win half of the time. (100,200,NEC)

*Monopoly is a trademark of Parker Brothers

$29.95

ASSEMBLER

Our assembler is the answer to your assembly language programming needs. It has all the features you expect in an assembler and more! It requires less than 3K of your valuable RAM space and is relocatable to any convenient place in memory. There are several useful macros already built in. You can output all or any portion of the assembled listing to your screen or printer. An extensive 56 page manual covers the use of the assembler, the complete 8085 instruction set, useful sample programs and LOTS of information on the ROM and reserved RAM areas. (100,200,NEC)

$32.95

Melody Maker

Melody Maker is a musical program generator. Simple cursor controls are used to select a note and position it on the staff making it easy to enter in sheet music. You can even use Melody Maker to add musical routines to your own programs. (100,200,NEC)

$19.95

BYTEFYTER

Now you can expand the memory capacity of your portable computer by reducing the size of the programs that you store in it. Bytefyter is a 100% machine language program that does just that. It is relocatable so that it won't conflict with any other machine language programs that you use now, or may use in the future.

Bytefyter works on your BASIC programs just as they are, IN PLACE. It strips unneeded spaces and remark lines. But that's not all! Bytefyter is smart! Bytefyter combines the lines of the BASIC program to whatever maximum length you specify. Each line of a BASIC program takes 5 bytes just for the line number and pointer information. By combining lines, Bytefyter saves a tremendous amount of space, space that could be used for another program or text file. Bytefyter actually checks the logic of your programs and doesn't combine lines that would cause the program to crash.

Bytefyter is amazingly fast. It will do its job on even the largest BASIC program in just seconds. You'll want to use Bytefyter on all your BASIC programs, whether you wrote them or bought them. (100,200,NEC)

$24.95

RENUMBER

Renumber is a machine language program that lets you renumber the lines of your BASIC programs IN PLACE! Renumber adjusts all references to line numbers throughout the program. It is completely relocatable so it won't conflict with your other machine language programs.

Renumber is FAST! It will renumber even the largest BASIC program in just seconds. You can renumber all or just part of a program. You decide the starting line number and the increment to use. It couldn't be any simpler. This is one utility that the serious BASIC programmer just can't afford to be without! (100,200)

$24.95

CBUG

CBUG is the ultimate debugging tool for your lap computer. It only requires 3K of your precious RAM space and is relocatable to any convenient place in memory. CBUG is not just fast, small and easy to use, it is POWERFUL!! With CBUG you can step through an assembly language program or the ROM while it displays the registers, the status of the flags, and associated memory locations. You can set breakpoints and excecute your code to that point. You can step through call instructions with a single keystroke and return to the point after the call. CBUG does number base conversion, hex addition and subtraction, search and display, search and replace and block moves of memory. CBUG allows you to alter the values contained in the registers, display memory and loadvalues into memory like a monitor program. (100,200,NEC)

$29.95

SORT

Our Sort utility lets you sort any TEXT file in place. You can sort the file by any field. Sort is 100% machine language and only requires .8K of RAM. (100,200,NEC)

$19.95

Circle 14 on Reader Service Card.

CUSTOM SOFTWARE

1308 WESTERN ● WELLINGTON, KS 67152

316-326-6197

VISA MasterCard

Please include $1.00 per program for postage.
Be sure to specify Model 100, Tandy 200 or NEC PC-8201A.
For orders outside the U.S., include sufficient postage for airmail delivery. U.S. funds only.

It's the Holmes Engineering/PCSG "chipmunk"

PORTABLE Disk Drive

for the Model 100/200

$599
Includes a library of six powerful programs

Uses the main menu concept. You see the disk directory instantly, arranged on your M-100 screen like your main menu. Just move the widebar cursor and transfer files with a function key. You can run a file directly from the diskette with the ENTER key. Uses 3½" microfloppy diskettes that have a rigid plastic casing and a metal core. They're tough and nonflexible. You can carry several in a shirt pocket without damage. There's 358K on a diskette. Ten of these in your briefcase and you've got 3½ megabytes.

Drive weighs only three lbs. and it works directly from the 110 outlet and recharges at the same time. It recharges in six hours with thousands of pages transferred between charges. It's compact, with dimensions of 2¼" x 5½" x 7.5"; and fits easily into your briefcase along with your Model 100 or 200.

Machine code programs, BASIC programs, *Lucid* files and documents all are saved and retrieved with no protocol–instantly, ready to run.

In a special association, Holmes Engineering and PCSG have worked together combining the hardware knowledge of Holmes and the software expertise of PCSG. The result is a product that can only be regarded as excellent.

You see the disk directory instantly; works just like the main menu

Here is what is really exciting. The portable disk drive has Random Access. Included as part of the operating system in the drive (ROM) is a very powerful disk BASIC.

This means that you can have BASIC programs that will access the diskette and read and write records directly on the diskette.

Just imagine yourself with this kind of capability.

Database – The portable disk drive stores your mailing list, inventory items, part #s and descriptions or any other data that you need to recall.

358K on a diskette

Invoice (purchase order) – At the touch of a button you can print out your sequentially numbered, professionally done invoices. This is truly professional invoicing capability.

Purchase orders are just as easy.

Sort – This excellent utility allows you rapid sorting of any records you have compiled. You can write the newly sorted list back in the same file on the diskette or to a new file.

Telecom interface – If you are a user that likes to access other computers or databases (for example CompuServe) by telephone then this powerful facility alone is worth the price of the disk drive. You can automatically download and upload information onto the diskette.

Calendar – Everyone who has seen this program has said, "This is the first calendar/diary/scheduler on any computer anywhere that I can use. It is so functional."

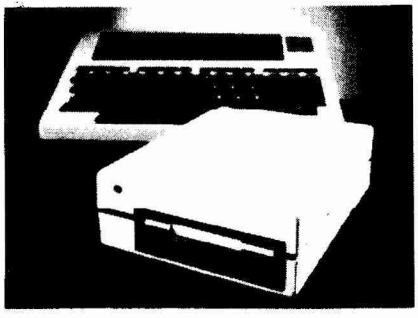
The calendar program is usable for two reasons, first it is designed correctly, and second you have the memory (358K) on the diskette to log and access a tremendous amount of notes over a long period of time.

Personal Finance Manager – This wonderful program truly lets you keep track of your finances.

All your records are kept on the diskette. Bank accounts (checking and savings) and charge accounts such as MasterCard and Visa.

We at PCSG believe we have the ultimate Model 100 system, the Portable Disk Drive plus the *Lucid* spreadsheet on snap-in ROM, *Write ROM* word processing and the new 64K RAM expansion now available from PCSG.

We want you to find out for yourself at no risk. If you aren't totally satisfied within 30 days, simply return the disk drive for a full refund. Priced at $599.95, including the software library. MasterCard, Visa, COD.



PORTABLE COMPUTER SUPPORT GROUP

1-214-351-0564

11035 Harry Hines Blvd., #207
Dallas, Texas 75229

PCSG offers a 30-day/money-back trial!

Circle 37 on Reader Service Card

¡Se Habla BASIC!

Portables are no longer tongue-tied to English BASIC. Translator interprets Spanish keywords.

By David D. Busch

JRA RESTORE : RESTAURE RUN : CORRA INPUT : ENTRE LIST : ALISTE END : FIN PRINT : IMPRIMA RETURN : RETO RNE STOP : CESE NEXT : PROXIMO DATA : DATOS RE, AD : LLEVE THEN : LUEGO FOR : PARA RESTORE : RESTA URE RUN : CORRA INPUT : ENTRE LIST : ALISTE END : FIN PRINT : IMPRIMA RETURN : RETO RNE STOP : CESE NEXT : PROXIMO DATA : DATOS READ : LLEVE THEN : LUEGO FOR : PAI RA RESTORE : RES TAURE RUN : CO

If you speak English you can learn BASIC. The computer tongue is based on the language of most Americans. However, for the Spanish-speaking population, BASIC's English roots can be a barrier to programing unless an interpreter is available.

Translator is a simple pseudo-compiler enabling the Model 100 or Tandy 200 BASIC to run Spanish-written programs. It allows program writing using Spanish keywords instead of English BASIC equivalents. It's best used by someone who already knows BASIC and who wants to teach Spanish-speaking people to program.

UNA LENGUAJE PARA EMPEZAR

Translating the BASIC keyword set would be unwieldy as well as unsuitable for teaching beginners, so Translator has been reduced to Tiny BASIC commands. Other keywords may be used but they must be in English.

Tiny BASIC is a smaller, simpler version of BASIC used on earlier microcomputers because it fits in 8K read-only memory (ROM). It lacks many features considered today as standard in advanced languages like the Model 100's and Tandy 200's.

All the commands, statements and functions available can be summoned and displayed on the screen by entering HELP or AYUDA while the program is running. As each line is entered the program checks for various criteria. Each must begin with a line number, and no more than one statement is allowed per line. Then the program generates a new line of code, replacing each of the Spanish keywords with the English equivalent. Both versions may be saved to random-access memory (RAM) or listed at any time.

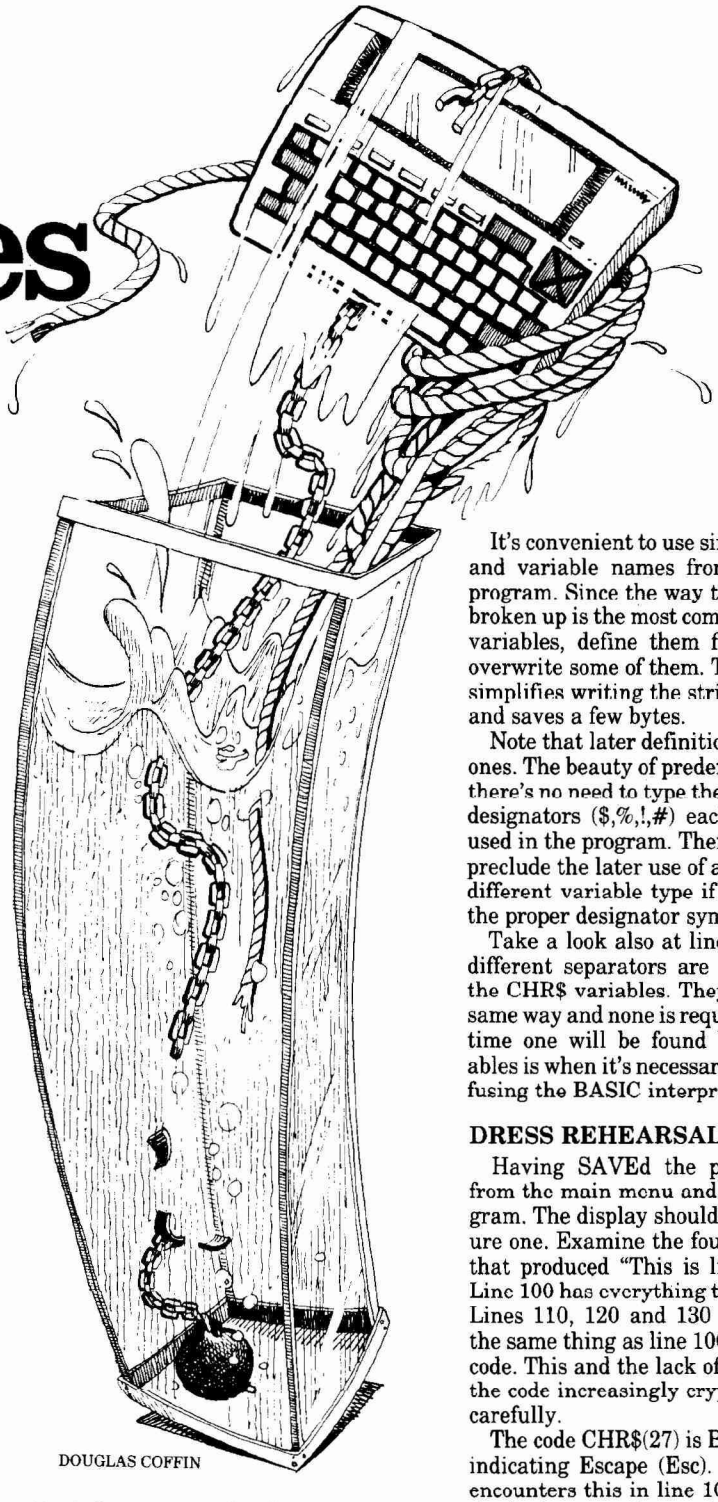
Editing is accomplished by reentering the line. The English (compiled) version of the program is object code. It may be loaded and run under a BASIC interpreter as long as the code entered in Spanish conforms to the normal syntax rules of BASIC.

CORTAS Y CORRECTAS

The Spanish keywords chosen may not be the best possible equivalents for their BASIC counterparts, but they're at least arguably correct. The BASIC translations were chosen using two criteria: brevity and approximate meaning. And because keywords are commands, the imperative verb form was used.

(continued on page 52)

NEC Great Escapes



DOUGLAS COFFIN

By Luft Pfeiff

Nothing could hold him: handcuffs, straightjackets and prison bars became mangled metal and cloth at his feet. The great escape artist Harry Houdini performed tricks using only strength and ingenuity.

NEC owners can pull off some fancy escapes of their own. By learning the following programing techniques, the machine becomes an escape master able to save time and memory.

Escape codes help eliminate the need to convert programs written in BASIC for one computer to a language understood by another machine. Since the NEC has a full-screen editor, escape codes can be input directly from the keyboard as editing aids or typed in without line numbers.

Table one is a list of available escape codes. Listing one is a short demonstration program for illustrating their use. To make the best use of this article, enter the program after reading the tips in the following section. Then RUN it while reading about code design and operation.

TRICK TIPS

There are identical or very similar lines in Listing one. Model 100 users reading this article can reduce typing in TEXT by copying, pasting and editing as necessary once the first version of a line has been typed.

The NEC full-screen editor makes this easier. For instance, to enter INPUT$ lines type and enter line 145, move the cursor back to the 4 in 145 and overtype 5 followed by Enter. The same can de done with six all the way to 20. When LISTed all the lines will be there.

Try the same with lines 160, 162 and then 180, 190 and 200, but also overtype the minor line changes before entering. Don't forget to proofread.

With the program entered and SAVEd, look at line 20. The definitions in this particular program aren't all needed but are useful to illustrate some programing ideas.

It's convenient to use similar constant and variable names from program to program. Since the way the alphabet is broken up is the most complex for string variables, define them first and then overwrite some of them. This technique simplifies writing the string definitions and saves a few bytes.

Note that later definitions replace old ones. The beauty of predefinition is that there's no need to type the variable type designators ($,%,!,#) each time one is used in the program. There's nothing to preclude the later use of any letter for a different variable type if each includes the proper designator symbol.

Take a look also at line 100. Several different separators are used between the CHR$ variables. They all work the same way and none is required. The only time one will be found between variables is when it's necessary to avoid confusing the BASIC interpreter.

DRESS REHEARSAL

Having SAVEd the program, start from the main menu and RUN the program. The display should resemble Figure one. Examine the four lines of code that produced "This is line. . ." texts. Line 100 has everything typed out fully. Lines 110, 120 and 130 do essentially the same thing as line 100 but with less code. This and the lack of spaces makes the code increasingly cryptic, so read it carefully.

The code CHR$(27) is BASIC's way of indicating Escape (Esc). When BASIC encounters this in line 100 it expects a single letter code to signify what it should escape to. The code shown provides the same function as PRINT@ in the Model 100 or LOCATE in the NEC. In this case after Esc is PRINTed and nothing is displayed, BASIC looks for

INTRODUCING THE

SIDESTAR

FOR THE NEC STARLET

The SideStar is a self-contained, plug-in, 128K RAM-disk cartridge the size of a wallet. It gives you more than memory—the SideStar gives your NEC Starlet (PC-8401A) new abilities.

Now Run the Powerful Software that Requires More Memory

DBASE II and many of the powerful CP/M software packages require alot of memory, which means using 64K mode and a disk drive. (There goes speed and portability.) When a disk drive isn't feasible, your SideStar takes over. Now you can load and run large disk-based software at RAM speeds—any time, anywhere.

Expansion Connector Adds Flexibility

With the SideStar in place, the NEC Disk/Video Adaptor, 1200 baud modem, or other cartridge can be plugged into the SideStar's expansion connector. Now you can load and store programs or data from any source directly with room for up to 124 files. A single file can be 124K (126, 976 bytes) long!

Forget About Changing Batteries

A 1.2 Amp Lithium battery sealed inside will power the SideStar for 5 to 7 years—into the next decade!

Is It Disk—or—Is It Ram?

Think of the SideStar as a diskette. It's a self-contained, mass-storage device that requires no outside energy source. It can be used for transporting information between computers, long term storage, and temporary storage. Unlike a diskette, it doesn't require a disk drive, power supply, or cables—and it's very, very FAST! To the Starlet it's a disk.

A No Risk Offer

You can buy the SideStar for a 30-day evaluation. If you are not completely satisfied, return it within 30-days for a full and prompt refund. You get a 2-year warranty on parts and labor. If your SideStar should ever need service, we will fix or replace it within 72 hours.

Introductory Price: $399

It's Easy To Order By Phone—Just Call

1 (800) 732-5012 TOLL FREE.

Orders only (8am.-5pm. PST)

(805) 987-4788

For orders in California and for Customer Service

FREE SHIPPING, HANDLING, AND INSURANCE

for Cont. USA. Ordered today—shipped tomorrow UPS. 30-day total satisfaction, money back guarantee. We honor Visa, M/C, AmExp, and Money Orders. Checks held 3 weeks. California residents add 6% tax.

*Price subject to change without notice. *DBASE II is a trademark of Ashton-Tate.*

PURPLE COMPUTING

420 Constitution Ave., Camarillo, CA 93010

Circle 45 on Reader Service Card

Advertisement

Text processing power that no other program can equal.

WriteROM©

on Snap-in™ Cartridge $149.95

PCSG says "Send it back in 30 days for a full refund if you don't agree."

WRITE ROM is the definitive word processing extension for the Model 100. Less than two months after the Model 100 was announced Portable Computer Support Group introduced the very first text formatter for the Model 100. That program, called Write + was licensed to Tandy and is now in Radio Shack Computer Centers as Scripsit-100. Write + had many powerful features and most reviewers still say it is the best of the cassette based text formatters. But now eighteen months later PCSG has introduced WRITE ROM. Those who experience it have said "WRITE ROM literally doubles the text processing power of the Model 100."

WRITE ROM is what you would have expected PCSG, the software leader for the Model 100, to develop in the 18 months since Write + was brought to the market.

First of all WRITE ROM as its name implies is on a snap-in ROM. You simply take a quarter and open the little compartment on the back of your Model 100 and press in the ROM cartridge. It is as easy as an Atari game cartridge and can be snapped in and out instantly so that you can use other ROM programs whenever you wish.

WRITE ROM appears on the main menu just like one of your built in programs. It lets you do every formatting function you would expect like setting margins, centering, right justifying and having headers and footers. But it does them under function key control, with the clear and easy to learn and use techniques for which PCSG has become famous.

In keeping with PCSG's long standing reputation for superlatively simple yet comprehensive documentation, the manual is a model of lucidity.

WRITE ROM remembers your favorite format settings so that you can print a document without any set up, but you can change any formatting or printing parameters instantly with a function key.

WRITE ROM's 'pixel mapping' feature shows you an instant picture on the screen of how your printout will look on paper. Incidentally, PCSG introduced this feature on the Olivetti M-10 version of Write + over a year ago.

In all there are 44 separate features and functions that you can do with WRITE ROM, and some of these features are truly breakthroughs for the Model 100.

First, WRITE ROM lets you do search and replace, with function key ease of course. Any word or phrase in a document can be searched for and replaced with any other phrase where the search words appear.

Second, WRITE ROM lets you send any text (formatted or not) to any other computer over the phone with just a function key. What's more, it dials and handles sign on protocol automatically.

Third, WRITE ROM has a wonderful feature called 'Library' that gives your Model 100 power that you never thought it could have. Library lets you record favorite phrases, words, or commonly used expressions (sometimes called boilerplate). Any place you wish any library text to appear in your document you just type in a code. WRITE ROM automatically inserts the text just like a Xerox Memory Writer.

The library phrase is inserted as your document is being printed rather than as it is being typed, so this feature conserves memory in documents where a long phrase is used repetitively, since each occurrence of a library phrase in your document is indicated by a single code character.

This Library feature is so powerful these two pages could be devoted just to telling you about things it can do. For example, you can have names and addresses that you designate in one text file with a customer or supplier number. Or you can have inventory items with stock numbers.

In your document you simply type in the customer or stock number and that entry from the other file is automatically inserted in the document. Picture what you can do with that kind of capability.

Because WRITE ROM is written in machine code, it is blindingly fast. No one can claim faster operation.

Because it is on a ROM it uses virtually none of your precious RAM for its operation, and it does not interfere with other machine code programs in your RAM. It works with any printer, serial or parallel. At the touch of a function key you can find the size of a RAM file in bytes and in words (ideal for journalists and other writers who need to know how many words are in a piece). You can make a duplicate copy of a document file under a new name. You also can rename or delete (kill) any RAM file with function key ease.

This description only scratches the surface of this amazingly powerful piece of software. You can automatically insert the date or the time anywhere in your document; WRITE ROM senses when you are nearing the bottom of a page, and at your command will start a new paragraph on the next page.

Write I was the Model 100 pioneer in the use of 'dot commands' to allow control of such things as margins, centering, line spacing and other appearance related changes in the middle of a document. WRITE ROM goes a step further by making all the dot commands Wordstar compatible. This means that if you wish you can quite easily prepare a Wordstar compatible document. Then you can use features of WRITE ROM (such as pixel mapping) that Wordstar lacks, before uploading to your desktop.

A Mail Merge feature allows you to send the same document to every name on your mailing list, personalized for each recipient.

WRITE ROM enables you to do underlining, boldface and correspondence mode as well as any other font feature that your printer supports in a way that is so unique many users say "It is worth the price of the program just to have this one feature."

Here's how it works: When you want to underline you don't have to remember some complicated printer code. You just type Graph-U, and to end underline you just type Graph-U again. For boldface it's Graph-B and to end boldface it's Graph-B again. It's easy to remember and easy to do. WRITE ROM lets you record the codes from your printer's manual one time only and then just use these easy to remember signals any time you want to do a printer font feature.

WRITE ROM does so many things that other text formatters cannot do. For example you can not only double space but triple, quadruple or any other.

WRITE ROM allows you to use your TAB key in a document so that you can indent the first line for a paragraph easily or space rapidly over many tab stops.

WRITE ROM has another nice feature. It allows you to undent. This means that you can have paragraphs that have a first line that projects to the left of the remainder of the paragraph.

WRITE ROM allows you to not only center a word or phrase on a line but you can center copy vertically on a page as well.

WRITE ROM has a feature that is unique to any word processor on any computer. It is called FORM. FORM is an interactive mechanism that lets you create screen prompts so that you or someone else can answer them to fill out forms, or supply information like to a questionnaire or answer correspondence rapidly inserting personal answers into a form letter.

It works sort of backwards from Library or boilerplate. As you recall, with the Library feature you type a code into a document and when you print, that phrase or word or paragraph is picked up from the Library file and inserted into the printed document. With FORM when you print, anyplace where you had previously typed in a GRAPH T in a document, the printer will stop and you are shown a prompt on the screen. You can type in directly on the screen and when you press ESC, what you typed is sent to the printer formatted like the rest of the document.

What is really great is that you created those prompts that appeared on the screen. By the way, the prompts won't appear in the printed document unless you want them to, and you don't have to be connected to a printer, you can write your completed forms to RAM files if you wish.

Think of how you can use FORM. A doctor or nurse could use it for a patient's history with each question appearing on the screen. An insurance salesman could have his entire questionnaire, or a police department could do a complete arrest report. You can construct a series of prompts to answer correspondence, automatically inserting the answers into a generalized letter format for a given type of correspondence, like customer service. This feature lets you answer letters in a rapid fire fashion each one with its personalized responses.

Before WRITE ROM you had to be a programmer to create a series of prompts to answer questions or record information. Now it is as simple as typing Graph T.

There are many other examples of excellent programming evident in WRITE ROM. The line feed problem of the Model 100 is dealt with by the simple use of a function key. Files are selected by moving the wide bar cursor over the WRITE ROM menu.

PCSG makes the claim that WRITE ROM is the easiest, fastest and most feature rich text formatter for the Model 100, as well as being the only one on a Snap-in ROM. You can do more with WRITE ROM than anyone thought possible for the Model 100. We at PCSG are happy to offer WRITE ROM because it expands the Model 100 to a dimension of text processing you cannot equal on even larger computers.

If you are already a PCSG customer you know the impressive quality of PCSG craftsmanship. We brashly state that WRITE ROM is the best you can buy. But don't take our word for it. It is sold on a thirty day trial. If you aren't as excited as we are, return it within 30 days for a full refund. Priced at $149.95, on Snap-on ROM. Mastercard, Visa or COD.

Circle 34 on Reader Service Card

PORTABLE
COMPUTER
SUPPORT
GROUP

11035 HARRY HINES BLVD. No. 207
DALLAS, TEXAS 75229

PCSG provides hotline software support for Model-100. Call 1-214-351-0564. Available now directly from Portable Computer Support Group. We endeavor to continue as The Leader in Software for the Model 100.

Protect your BASIC programs from piracy!
Recover that precious RAM space!

»» THE PROBLEM IS SOLVED ««

Run BASIC Directly
From ROM

Now for the Tandy 200!!!

Ask us about Guardian for the Model 100
Tandy 200 and Nec 8201A from
Polar Engineering and Consulting
First with ROMs for the Model 100

MasterCard NOW ACCEPTING MASTERCARD AND VISA CALL TO ORDER VISA

Compare this package with anyone else's! The only macro assembler and symbolic debugger you need, sold only in ROM for the Model 100, Tandy 200 and Nec 8201A.

ROM2

Before you buy a cheaper assembler and debugger, realize how much less you'll get! **ROM2** uses no RAM space. Renumber BASIC and MORE!!!!

Other similar products just don't match up.

ROM2 with Documentation $85

Cleuseau+**ROM2** Together in one ROM $145

Please indicate Model 100, Tandy 200 or Nec 8201A.
Please add $4 for First Class Mail.

Put YOUR machine code software in a ROM for the Model 100 or Nec 8201A

POLARIS

The ROM development system, including ROM emulator, symbolic debugger and macro assembler.

POLARIS allows you to develop and test your ROM software before burning expensive ROMs. We'll produce your first ROM for FREE!

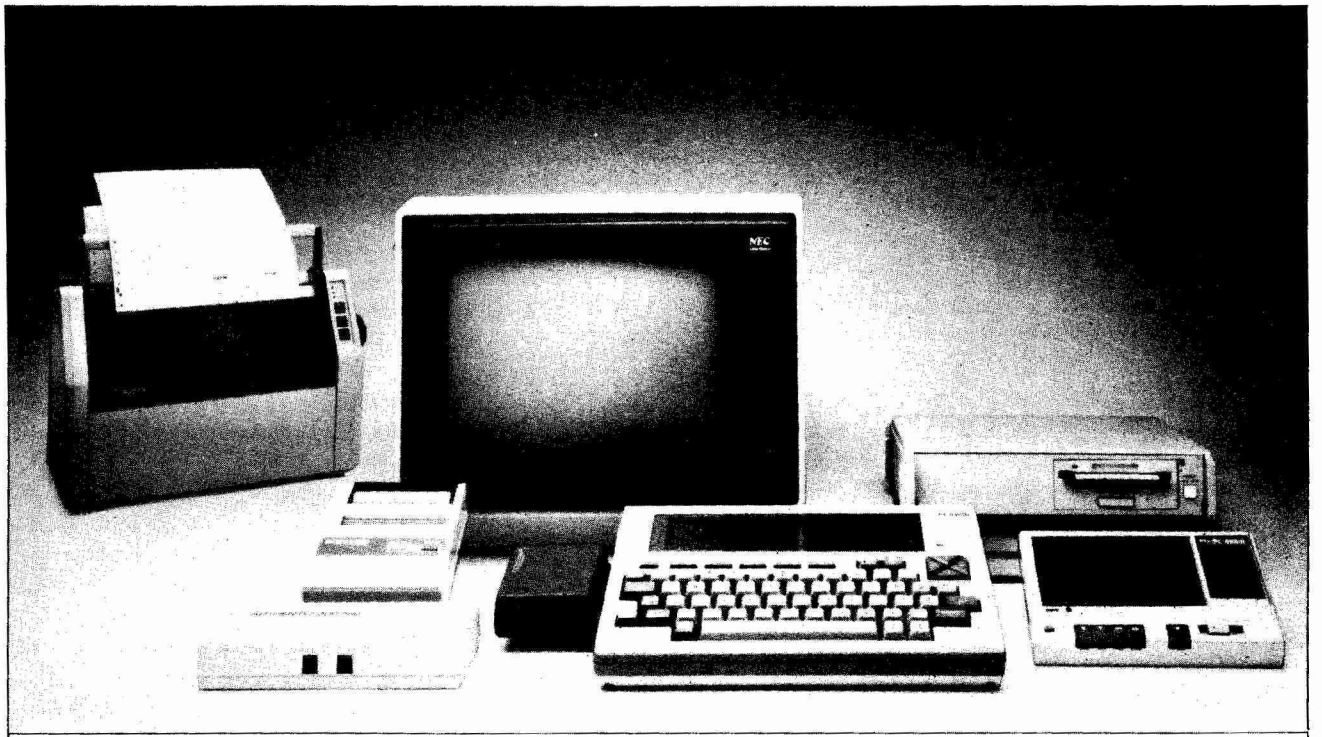
Model 100 ..... $600
Nec 8201A $450
Both $850

Please add $4 shipping and handling.

Circle 44 on Reader Service Card

The ROM Experts . . . Our software and yours in ROM for the Model 100, Nec 8201A and Tandy 200.

Polar Engineering and Consulting
P.O. Box 7188, Nikiski, Alaska 99635 (907) 776-5529



Peripherals available for the NEC PC-8201A from NEC Home Electronics — Two portable printers: 80-column width and 40-column width, cassette tape recorder, monochrome monitor, an additional RAM bank (32K), micro-floppy diskdrive, and 300-baud modem.

the following character and finds CHR$(89) or Y.

Unlike control codes, the case (upper or lower) of the letter is significant when using Esc. When BASIC sees Esc-Y it recognizes that a cursor jump is imminent and that the next two characters will direct that move.

Esc-Yyx is similar to LOCATE. The position to which the cursor jumps is designated by two parameters indicating the row (y = 0 to 7) and column (x = 0 to 39). The order of these parameters is reversed between the two commands. The corresponding Model 100 PRINT@ command uses only one parameter (0 to 319) to indicate screen character locations left to right, top to bottom.

Where LOCATE and PRINT@ use decimal numbers as parameters, Esc-Y uses ASCII 32, the printed space, as an origin and counts upward from there. For example the bottom of the display, row seven, is the single open quote character — ASCII 39 (32 + 7). The far righthand column, number 39, is the G — ASCII 71 (32 + 39). In line 100 CHR$(33) designates row one and CHR$(36) designates column four. Figure two provides row and column numbers plus symbol labels that can be attached to the edge of the computer screen for quick reference.

figure one

```
This is Line 100
 This is Line 110
  This is Line 120
   This is Line 130

Press RETURN to continue
```

SHOW TIME

Now look at lines 110, 120 and 130. They do the same thing as line 100 but at a different location and with fewer code characters. Line 105 assigns the predefined string variable E to CHR$(27) or Esc.

In lines 110 and 120 where E substitutes for CHR$(27) and Y for CHR$(89), there's no difference in operation. The CHR$(34) in line 110 is a special case. Some readers may recognize it as the ASCII code for quotation marks. But as a string delimiter of the BASIC interpreter, it can't be used directly to indicate a literal double quote or in this case a CHR$(32+2) counter. In both cases use the CHR$(34) form or a string variable designated to it such as Q = CHR$(34).

The form E"Y#&" in line 120 is probably the most useful one. The pound symbol (#) is CHR$(35), so a count of three — or ampersand (&) — is likewise a count of six. At the risk of becoming excessively cryptic it's possible to save another byte of memory by doing what's shown in lines 125 to 130. Note that F=E+"Y" is the shortest possible definition and isn't worth using unless variable F will be used more than eight times. Note that unlike line 100, the plus sign (+) is required. Press Enter.

The E"U" of line 140 disables the function key label row but unlike SCREEN,0 the labels aren't erased. The cursor is relocated and then E"l" erases the row the cursor is on. (The character referred to is lowercase l, not one.)

After rehitting Enter line 150 deletes the blank row. The remaining rows — including the liberated labels — move up to fill the space.

Lines 160 and 162 insert two rows that say "Press Return. . .". Note the difference in code. In line 160 even though the cursor is placed to match the column of the previously displayed "Press Return. . ." it returns to column zero after the row is inserted but before the text is printed. Line 162 corrects this by using two cursor locating commands. The labels have now been pushed off the bottom of the screen.

Line 170's E"V" locks the display so it won't scroll upward if a new row is in-

serted at the bottom of the display. A statement to that effect is written into a previously blank row.

Line 180 then inserts a new row at the top of the screen, everything else moves down and the previous bottom row is lost.

Insert the same text on row one but use E"p" to reverse the video and E"q" to turn reverse video off. Jump to the middle of the top row and use E"K" to erase to the end of the row.

When another row is inserted at the bottom of the screen in line 200 only that row is affected. The previous bottom row is displaced downward. Following INPUT$ in line 205, execute line 210 to unlock the screen scroll with E"W" and enable the function key label row with E"T". The program being ENDed, BASIC's "OK" and cursor scroll the upper seven rows upward, leaving the bottom row in place.

But where are the function key labels? Press Enter once or twice. The cursor won't move into the bottom row. Everything else scrolls up but "INSERTED ROW" is still at the bottom. Press Shift and the labels return.

Next time you RUN the program try pressing Escape rather than Enter in response to the INPUT$ statements.

MORE ESCAPADES

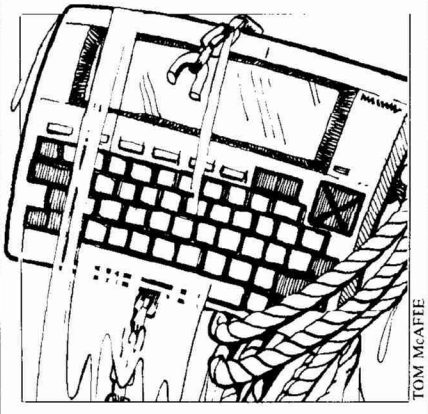
The magic continues. Tandy laptop owners who want to learn more about NEC'ers and their love for the machine's full-screen BASIC editor,which doesn't use TEXT, should read on.

While editing in BASIC in the NEC PC-8201A, all escape codes can be used directly from the keyboard. Press Esc followed by the correct capital or lowercase letter for the function wanted.

See the difference between this and using Ctrl where two keys have to be pressed simultaneously. In the case of Esc-Y the cursor will jump to row and column as the next two keys are pressed. Be careful about case and shift where necessary.

There are some inconsistencies such as Esc-U disabling the function key labels but not erasing them. An additional erase code is required. However Esc-T will enable the function keys and restore the labels directly. The other codes work immediately for clearing part of the display, inserting lines and locking scroll. Watch out for Esc-P in this mode. It will disable the escape function until Enter is pressed. Also, as long as Enter isn't pressed none of the changes made on the display will affect the program itself.

NEC'ers into sensational escapes should be forwarned: Not every feat in Houdini's bag of tricks should be tried. It's not suggested you bind your NEC with ropes and chains and toss it into an aquarium to see if it can duplicate his Chinese water torture cell routine. □



TOM McAFEE

table one

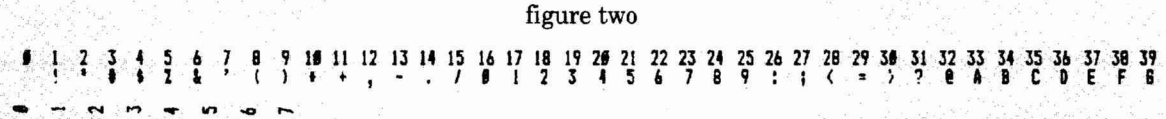
BASIC Escape Codes

Esc-A	Move cursor up one row
Esc-B	Move cursor down one row
Esc-C	Move cursor right one column
Esc-D	Move cursor left one column
Esc-E	Clear screen; home cursor
Esc-j	Clear screen; home cursor
Esc-J	Erase to the end of display
Esc-K	Erase to the end of row
Esc-l	Erase row cursor is in
Esc-L	Insert row at cursor position
Esc-M	Delete row cursor is in
Esc-p	Reverse video On at cursor
Esc-q	Reverse video Off at cursor
Esc-P	Cursor On
Esc-Q	Cursor Off
Esc-T	Enable and display function keys
Esc-U	Disable and erase function keys
Esc-V	Lock scroll
Esc-W	Unlock scroll
Esc-Yyx	Locate cursor at row y, column x

Please help us rate this article's value. If you've found it very valuable, circle 113 on the reader service card. If it was moderately valuable, circle 114—and if it wasn't valuable to you, circle 115.

```
EscDem.BA
10  'ESCape Code DEMonstration Program
15  '(c)Copyright 1985 by R L Pfeiff
20  DEFSTRA-W:DEFINTI-L,X,Y:DEFSNGM-O:DEFDBLZ
100 PRINTCHR$(27);CHR$(89)+CHR$(33) CHR$(36)"This is Line 100"
105 E=CHR$(27)
110 PRINTE"Y"CHR$(34)"%""This is Line 110"
120 PRINTE"Y#&""This is Line 120"
125 F=E+"Y"
130 PRINTF"$'""This is Line 130"
135 RS="Press RETURN to continue":PRINTF"&$"RS::R=INPUT$(1)
140 PRINTE"U"F"# "E"l"
145 R=INPUT$(1)
150 PRINTF"# "E"M"
155 R=INPUT$(1)
160 PRINTF"$$"E"L"RS
162 PRINTF"% "E"L"F"%$"RS
165 R=INPUT$(1)
170 PRINTE"V"F"& ""Screen scroll is locked
175 R=INPUT$(1)
178 A="INSERTED ROW "
180 PRINTF"  "E"L"A;A;A
185 R=INPUT$(1)
190 PRINTF"! "E"L"A;E"p"A;E"q"A;F" 4"E"K";
195 R=INPUT$(1)
200 PRINTF"' "E"L"A;A;A
205 R=INPUT$(1)
210 PRINTE"W"E"T":END
```

figure two



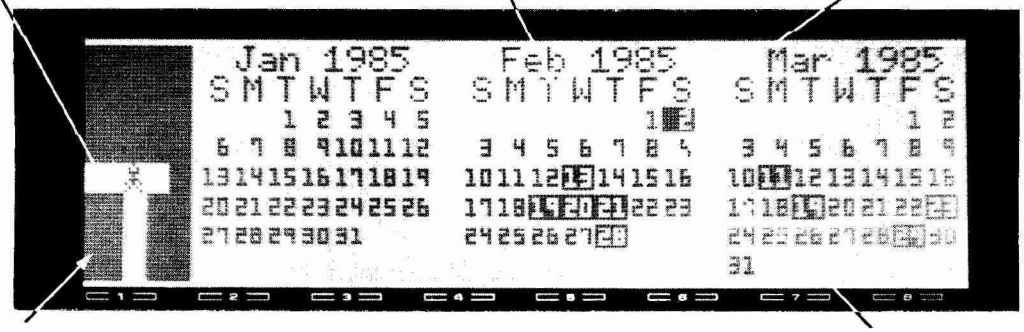
"It's about time someone wrote this software."

We've done it with TMPC (The Most Precious Commodity)

*Exclusive *Floor Plan interface*

Fast machine language program displays calendars in ½ second

Current day flashes, and can be changed with arrow keys



Fourteen other screens handle projects, print diaries, and monitor files

Appointments for indicated day displayed with a single keystroke

Your TRS-80 Model 100 probably saves you time already. So why not use it to *manage* your time? The **TMPC** software from Acroatix transforms your Model 100 into a command center for appointments and projects.

More than a Calendar

Your Model 100 deserves more than a simple-minded replacement of a date book. The **TMPC** is designed around principles from Stephanie Winston's *The Organized Executive*, a popular self-improvement guide for anyone who wants to be better organized. Every **TMPC** feature has been carefully designed and tested to work for you.

AUTO LOG-ON PROGRAM FOR:

Free Sample

```
10 P$="16176575422"
15 P$=P$+"<= =^D^D?ltmpc^M?s>"
20 M=VARPTR(P$)
30 A=PEEK(M+1)+256*PEEK(M+2)
40 CALL 21200
50 CALL 21293,0,A
60 LOAD"MDM:8N1D",R
```

Note: Before running this program, connect your Model 100 to a telephone with the Radio Shack modem cable (see page 76 of the owners manual).

Set TELCOM status to M8N1D.

Massachusetts residents must remove the area code in line 10.

Interested? Ask for our free demonstration program today. If you have a modem cable, we will send it over the phone (see the box); the call takes about five minutes. Otherwise, send us $3.00 for handling and we'll send a cassette with the sample. Discover the old-fashioned value in **TMPC's** space age design, and you'll agree that, "It's about time someone wrote this software."

TMPC by Acroatix
$49.95 + $3.00 shipping
Phone orders call

(800) 225-5800

VISA MasterCard

COD orders accepted

Circle 2 on Reader Service Card

Ac′rō•ă′tix Incorporated
P.O. Box 273 Wilmington, MA 01887

617-658-5560

NEC Joins African Relief

Senegal's widespread hunger and drought conditions are better known thanks to the NEC PC-8201A's recording and transmitting powers.

By Larry Hollon

Darkness besieges us. The dust is so thick it brings nightime to midday. As the camera crew packs away equipment I slide my NEC PC-8201A into its case and wrap it in a dry towel. A duststorm like this can ruin equipment in minutes so we head for shelter.

United Nations officials estimate 225 million people in 24 African nations face hunger. I'd come to Senegal in west Africa on behalf of Church World Service (CWS) to collect information for articles and a film. It was an attempt to meet this country's human needs.

The NEC was my constant companion traveling over bone-crunching roads and in stultifying heat. It was a necessary tool recording reality. But a choking duststorm pushed the machine to its limits. Even the villagers living daily with the blowing, stinging grit sought refuge inside their huts.

Our task was to create public awareness about a place where there's neither electricity nor running water. Equipment failure could spell disaster. The nearest NEC dealer was 6,000 miles away.

MACHINE IN THE DUST

The NEC was stored in a foam-padded camera bag while we bounced along in the cab of a pick-up truck. There's still grit in the keyboard despite the computer's being stuffed under a foam mattress in double wrapping during sandstorms.

We did filming and interviewing in the early morning and late afternoon. Midday was too hot to work in the sun so that time was usually spent composing on the NEC in shade beside a hut. While writing I encountered the machine's most frustrating trait: as memory fills up the screen display lags behind the entry. The only solution was to keep memory clear of extraneous text and save files often to cassettes.

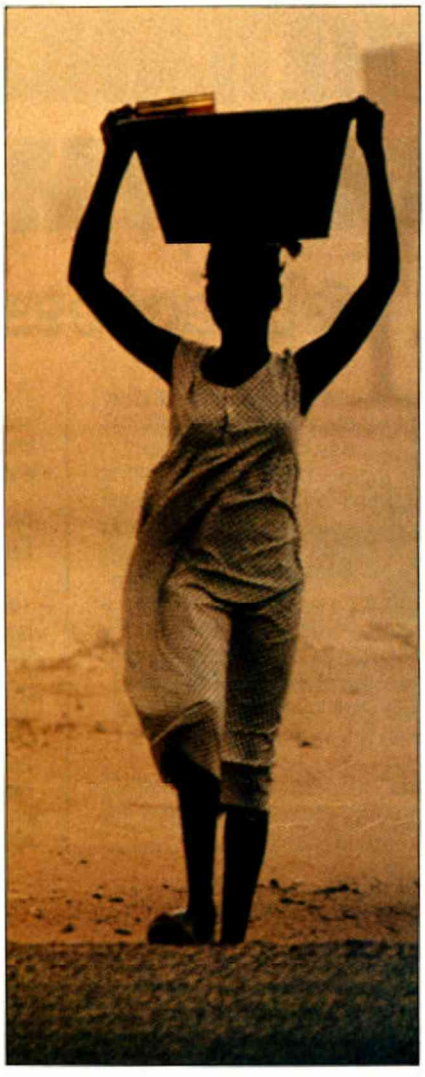
A dozen four-packs of Eveready Energizers supplied power. On other trips nicad batteries had proved short-lived, and re-charging is a major problem in an area like Senegal. If a portable generator is available — there was none here — few want to use its precious fuel to recharge batteries. A portable solar charger took two and one-half days to partially charge a small 12-volt lantern battery, hardly practical.

The Energizers lasted their rated life of 18 hours and then some. In a pinch a set of discharged batteries left in the sun regenerated enough to allow downloading files to cassette tapes.

Saving files on cassettes was both simple and reliable. Radio Shack C-20 and Laser C-10 (Swire Magnetics, Gardena, CA) datacassettes were unaffected by heat and repeated use. But in the extreme heat an off-brand tape, apparently thinner and narrower, stretched and would not load. Unfortunately this specification does not appear on packaging. The wrong place to find out is at the edge of the Sahara desert.

Another bargain passed the test, however. It is a plastic GE Datacassette Tape Recorder (Model 3-5160A) bought at a discount store for $35. Except for a tape counter, it has no bells and whistles. It's lightweight, compact and nondescript.

The simple TEXT program in the NEC proved practical for merging parts of files. The cursor key arrangement is particularly useful. Research notes, interviews and personal impressions were saved on cassettes and the select and cut functions were used for identifying parts to be merged with the Paste key. The source document in random-access memory (RAM) could then be killed.



The last text selected remains in memory occupying useful space. The paste buffer can be cleared by entering BASIC from the main menu and typing *CLEAR 256,-3220* with no effect on the document in RAM.

The first article was written while still in the village. Later, while on the plane to New York, I edited it in the NEC, uploading it to an office word processor from which it was transmitted for typesetting. Timing was critical. The printing of our agency magazine was being held for this article since it was a key to our interpretation of the global food crisis.

ARID COMMUNICATIONS

In Dakar, the modern capital city seemingly more European than African, I had hoped to upload my files and send them to the United States. But telecommunicating from Senegal isn't possible.

Indeed, telecommunicating from over-

(continued on page 48)

Center: Villager prepares simple meal on an open fire. Right: Young woman walks miles to closest water hole through raging sandstorm. Bottom: Senegalese youth works family plot of squash. Seeds planted were provided by CWS. Above photos by Larry Hollon. Photo banner by Tom McAfee

THE TANDY 200 AND MODEL
OFFER MUCH MORE THAN JU

Our accessories make them the only com

When we introduced the Advanced Technology Model 100, it quickly became the most highly-acclaimed lap-size computer ever. A battery or AC-powered computer with five built-in programs and a telephone modem that fits into a briefcase. Our Tandy 200 took this great idea a few steps further—a big easy-to-read 16-line by 40-character "pop-up" display. Multiplan spreadsheet software, plus an alarm and calculator.

But the story doesn't end there—we back both machines with extensive accessories that help make them powerful desktop tools.

New Low Price! Disk/Video Interface

Turn your Tandy 200 or Model 100 into a versatile disk-based home or office system with a Disk/Video Interface—now only $499 (26-3806, was $799.00 in Cat. RSC-14). It features a built-in 184K floppy disk drive, and a 40-character by 25-line display with your TV or an 80 x 25 display with a standard video monitor. You can even add a second internal disk drive.

Thermal Ribbon Printer

Use it anywhere! The TRP-100 (26-1275, $299.95) works on batteries or AC power (adapter included), and prints on plain or thermal paper. The TRP-100 quietly prints 50 characters per second. Produces bit-image graphics, too.

Versatile Bar Code Reader

Our Bar Code Reader (26-1183, $99.95) is an optical scanning device that's ideal for inventory control, billing and couponing. Software drivers, callable from BASIC, allow you to read Universal Product Code, 3 of 9, Plessey and other bar code formats.

L 100 PORTABLE COMPUTERS
JUST COMPACT PORTABILITY

mputer you'll need—in or out of the office.

Communications Power

One of the most exciting features of the Tandy 200 and Model 100 is the built-in modem that lets you communicate with other computers over the phone line. Our Direct-Connect Modem Cable comes with one free hour on both the CompuServe Information Network and Dow Jones News/Retrieval service.

Get news, weather and sports, business and stock market information and more. Information networks open up a whole new world of applications power.

And when you're on the road, you can bypass direct connection with our Acoustic Coupler. It's a great way to keep in touch with your home office. And we even offer a briefcase and padded carrying case to make portability all it's supposed to be.

Come in Today!

Stop by your local Radio Shack Computer Center and see both the Advanced Technology 24K Model 100 (26-3802, $599) and 24K Tandy 200 (26-3860, $999), as well as our complete line of accessories and software. You'll find everything you need for professional, portable computing power—for your desk or on the road.

Radio Shack®
The Technology Store™
A DIVISION OF TANDY CORPORATION

Prices apply at Radio Shack Computer Centers and participating stores and dealers. Multiplan/ TM Microsoft Corp. CompuServe/Registered TM CompuServe, Inc. Dow Jones News/Retrieval/ Registered TM Dow Jones & Co., Inc.

Send Me a 1985 Computer Catalog!
Mail To: Radio Shack, Dept. 86-A-107, 300 One Tandy Center, Fort Worth, Texas 76102

NAME _____
ADDRESS _____
CITY _____ STATE _____ ZIP _____
PHONE _____

Circle 48 on Reader Service Card

Write ROM: Worth the Wait

This text formatter and word processor puts a desktop in your briefcase.

By Deborah L. Davis

At 10:00 I hovered over my Model 100, pocketknife in hand, poised for action. By 10:03 I had installed Write ROM 1.0, Portable Computer Support Group's (PCSG) latest firmware. Don't think this easy beginning was without foreboding. Installation may have taken three minutes but reading the instructions took longer.

Write ROM itself is comprehensive, highly functional and simple to use. The documentation is also comprehensive, but it isn't the "model of lucidity" PCSG claims. It's the major blight on an otherwise superb product.

The new text processor is terrific and will best serve specialized business applications. It's worth the cost and — if you placed your order when Write ROM was first advertised — the wait.

As firmware, Write ROM is easy to load, uses very little memory and can't be accidentally erased or contaminated. But it also has firmware's drawbacks. It's more costly than cassette-based text processing software and can't be upgraded. And with only one ROM socket, Write ROM and any other chip are impossible bedfellows.

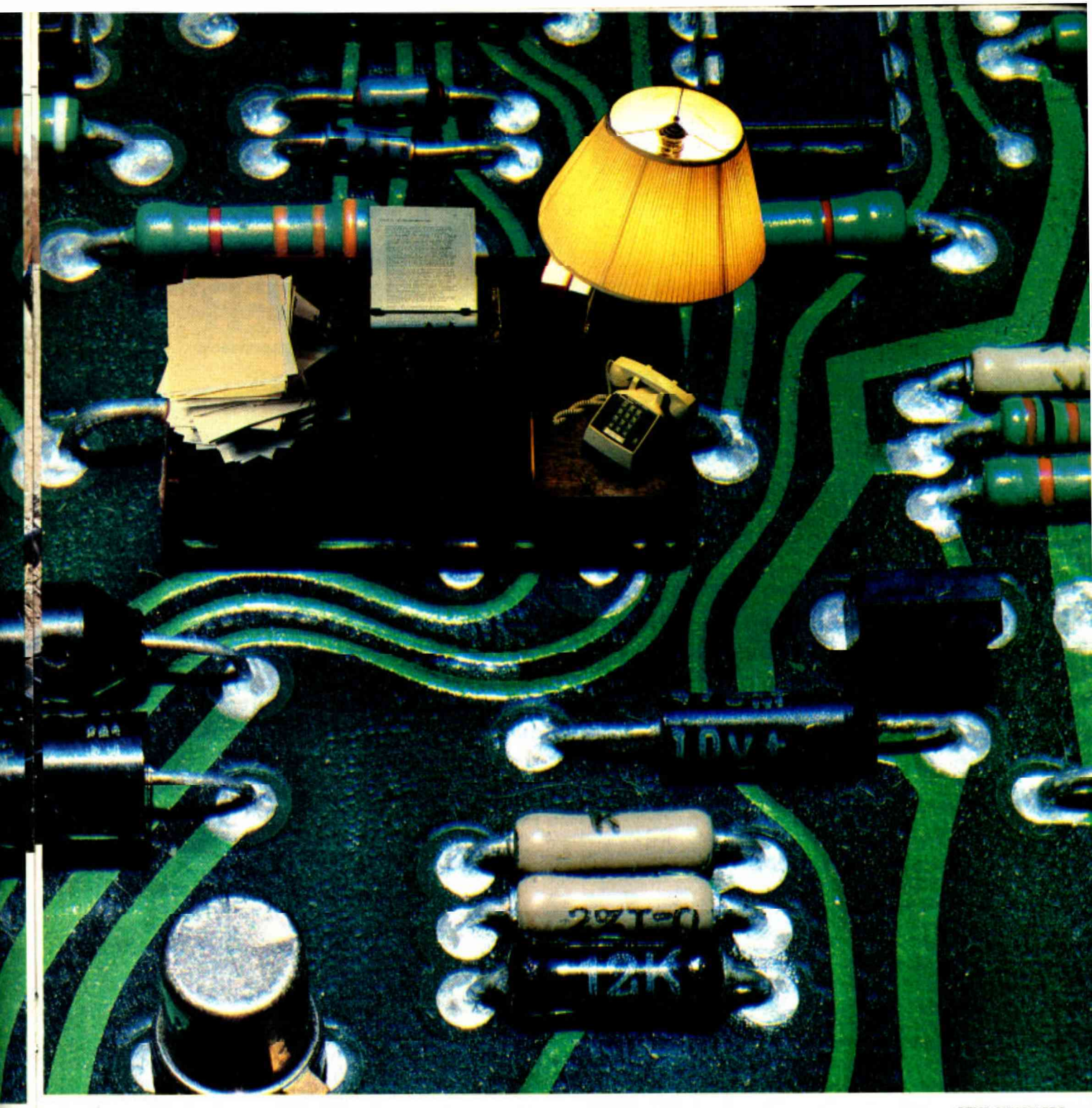
Write ROM arrives tucked into an open plastic pocket on the inside front of its vinyl covered, printed manual. The tiny but costly firmware is unceremoniously taped to the cover. It deserves safer packaging, sans stickiness.

With Write ROM installed and the machine turned on, a file called WSPEC.DT appears in the Write ROM menu. It cannot be brought up for inspection and remained a mystery until the answer emerged from the appendix.

WSPEC.DT holds format specifications set in Write ROM. When the machine is turned off and on again, the last defaults are still operating. PCSG's claim that Write ROM "uses virtually none of your precious RAM" is accurate.

Write ROM 1.0

Text processing program for Model 100
$149.95
Portable Computer Suppport Group
11035 Harry Hines Blvd. #207
Dallas, TX 75229
(214) 351-0564
Circle 110 on Reader Service Card



BENJAMIN MAGRO

SO SIMPLE

TELECOMMUTER™

INTEGRATED WORD PROCESSING AND COMMUNICATIONS SOFTWARE

For the Tandy 1000, 1200 and 2000, and IBM-PC/XT/AT/jr and compatible computers. Uses the same editing and communications commands as the Model 100/ Tandy 200 — plus much, much more!

EASY TO USE. . .

"I am writing to let you know that I like your program very much indeed. The high-speed transfers from my Model 100 to my Tandy 1000 are flawless. So many word processors are encumbered by unnecessary baggage for the normal user. Yours is powerful, yet the user interface is elegant in its simplicity. It is essentially a 'Super Model 100.' Your advertising does not express the versatility of the program. I was intending to use it for general writing and articles. I now intend to use it for a book I'm working on."

Jay S. Moynihan, Esq.
Ashland, WI

WITH POWER FOR THE BIG JOBS!

"A few weeks ago I received Telecommuter . . . it has been in constant use as a word processor, a telecommunications package (which has allowed me to access numerous data bases), and to transfer files from my Model 100 to the Tandy 2000. Since Telecommuter has arrived, both Word Perfect and Videotex Plus . . . the word processor and terminal program I had been using . . . have not left the shelf. I have also used Telecommuter to write dBase II command files, and it has made that job so much easier than when utilizing the programming section of dBase itself. My most enthusiastic congratulations on a superior product."

Ivan K. Goldberg, M.D.
New York, NY

Available in six versions:

TC-Write Ittm $125, **TC-Standard** and **TC-XMODEM** $200, **TC-DeLuxe** $300, **TC-plus** $400, **TC-Corporate** $1000.

Advanced features include DOS access from Word Processor, XMODEM file transfer, Telcom macros, and full VT100 terminal emulation. Host Mode gives control of your computer to a remote Model 100/200 or MS-DOS computer running Telecommuter.

Call or write today for more information on the entire Telecommuter product line. Product upgrades available for difference in price. We accept MasterCard and Visa for mail or telephone orders, and we ship free in the USA.

Look for Telecommuter at your local Radio Shack Computer Store!

SIGEA SYSTEMS, INC.

19 Pelham Road, Weston, MA 02193 (617) 647-1099

Circle 51 on Reader Service Card

portable 100/200

NAME _____

COMPANY NAME _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

A. Do you own a 1. ☐ Model 100 2. ☐ Tandy 200

B. Do you own either a 1. ☐ NEC 8201 2. ☐ Olivetti M-10 3. ☐ Other "briefcase" computer?

C. Is this the first microcomputer you have owned/used?
1. ☐ Yes 2. ☐ No

D. Do you use your Model 100/200 to communicate with other computers? 1. ☐ Yes 2. ☐ No

E. Is the primary use of your computer for 1. ☐ business or 2. ☐ personal applications?

F. YES! Sign Me Up for 1 Year for THE PORTABLE PROGRAM REVIEW.
($19.96 — 12 issue Charter Offer — You save $10.05 off the Regular Price)

☐ Check or M.O. Enclosed.

☐ M/C or VISA # _____

Exp. Date _____

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120
121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140
141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160
161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180
181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200

8/85

portable 100/200

NAME _____

COMPANY NAME _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

A. Do you own a 1. ☐ Model 100 2. ☐ Tandy 200

B. Do you own either a 1. ☐ NEC 8201 2. ☐ Olivetti M-10 3. ☐ Other "briefcase" computer?

C. Is this the first microcomputer you have owned/used?
1. ☐ Yes 2. ☐ No

D. Do you use your Model 100/200 to communicate with other computers? 1. ☐ Yes 2. ☐ No

E. Is the primary use of your computer for 1. ☐ business or 2. ☐ personal applications?

F. YES! Sign Me Up for 1 Year for THE PORTABLE PROGRAM REVIEW.
($19.96 — 12 issue Charter Offer — You save $10.01 off the Regular Price)

☐ Check or M.O. Enclosed.

☐ M/C or VISA # _____

Exp. Date _____

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120
121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140
141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160
161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180
181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200

8/85

announcing the launch of THE PORTABLE PROGRAM REVIEW

The Newsletter of Public Domain Software Programs, Listings, Reviews and Tips From the Editors of Portable 100/200.

SAVE 1/3 OFF SUBSCRIPTION PRICE!

SUBSCRIBE TODAY AND GET 12 PROGRAM-FILLED ISSUES TO THE NEWSLETTER OF PUBLIC DOMAIN SOFTWARE FOR THE MODEL 100 FOR ONLY $19.96 (Reg. 29.97, you save $10.01)

Subscribe by mail with the reader service card or Call TOLL FREE 1-800-225-5800 for credit card orders

READER SERVICE

- ☐ Answer questions A through H on one of the cards below.
- ☐ Circle the number(s) corresponding to advertisements for which you like more information.
- ☐ Either (a) print or type your name and complete address on the attached card and mail; or (b) telephone TOLL FREE

1-800-225-5800

7 days a week, 8 am – 12 pm, Eastern time and give the operator your name and address. The operator will then ask you several of the questions, as well as in which Reader Service numbers you are interested.

- ☐ The literature you have requested will mation represents a major expenditure on behalf of the advertisers.
- ☐ Allow 3 to 5 weeks delivery time for advertiser's material (1 to 3 weeks if you telephone 1-800-225-5800).

IF YOUR NEED IS MORE IMMEDIATE, PLEASE CONTACT THE ADVERTISER DIRECTLY.

Receive more information about products advertised in this month's PORTABLE 100/200 — it's simple and free!

ADVERTISERS INDEX

PG#	RS#	ADVERTISER
29	2	Acroatix
39	5	American Technologies
59	6	American Technologies
44	3	Axonix
48	4	Buddy Systems
51	7	CISS
40	8	CSA
53	9	Cabbage Cases
43	1	Canada
3	10	CompuServe
38	11	Computer Peripherals
45	12	Covington
46	13	Cryptronics
19	14	Custom Software
47	15	DFW Computer Center
41	16	Delker Electronics
59	18	Economy Computers
50	19	Elexor
58	22	FACS
45	20	Forth Worth Computers
37	21	Infosoft
41	23	KJM Development
49	24	Kangaroo
42	25	Loquor
57	-	Marketplace
50	27	Merritt
12	26	Micro Demon
39	28	Micro Peripheral
53	29	Nictrix
49	31	Node
10	33	P.C.S.G.
11	33	P.C.S.G.
5	35	P.C.S.G.
24	34	P.C.S.G.
25	34	P.C.S.G.
15	36	P.C.S.G.
20	37	P.C.S.G.
CIV	39	PG Design
37	38	PG Design
54	40	PIC
47	41	Paramount
7	44	Polar
26	44	Polar
9	17	Prairie Power
CIII	43	Purple Computing
17	49	Purple Computing
23	45	Purple Computing
43	46	Purple Computing
32	48	Radio Shack
33	48	Radio Shack
62	47	Radio Shack
63	47	Radio Shack
36	5	SIGEA
42	50	Scott Foresman
52	52	Softmate
55	54	Southworth
55	55	Touchbase
CII	58	Traveling Software
1	57	Traveling Software

JACKROBAT

A SOPHISTICATED CHALLENGE FROM INFOSOFT SOFTWARE SYSTEMS

AT LAST THE MODEL 100 CAN PLAY WITH THE BEST OF THEM!

The ULTIMATE MULTI-SCREEN Arcade Game for the MODEL 100 Computer. JACKROBAT delivers TEN INDEPENDENT SCREENS of SMOOTH, FAST, outrageous entertainment that will test your strategy as well as your reflexes, and keep you coming back for more. Each screen is a different challenge as you maneuver the agile JACKROBAT around various obstacles while capturing a vast array of tokens that will insure your survival.
You'll never get this much game anywhere else for just $19.95.

********** MAIL THIS COUPON OR CALL (203) 448-1126 TO PLACE AN ORDER **********

INFOSOFT
SOFTWARE SYSTEMS

[ ] JACKROBAT ..... Qty.– ____ x $19.95

VISA

MasterCard

Sub Total $ ____
Connecticut Res add 7.5% ____
Shipping and Handling $2.00
TOTAL $ ____

Mail To: INFOSOFT
P.O. Box 1484
Groton, CT 06340

Name ____
Address ____
City ____
State/Zip ____
Signature ____

[ ] Enclosed Check/MO [ ] M/C [ ] Visa

Card No. ____ Exp. Date ____

24K RAM MEMORY MODULES

For Your TANDY MODEL 200

- Why not pay a lot less for additional **24K RAM Modules** for your **TANDY 200?**
- Our price is only **$139** each! **$135** each if you order two or more per order! Radio Shack list price, nearly $250 each.
- Our **24K RAM Module** is the highest quality available; it comes with a money-back guarantee — If it doesn't perform perfectly, send it back and we will replace it or return your money.
- Easy to follow instructions. This upgrade is as easy as putting in new batteries!
- Immediate Delivery! Call us if you have **any** questions.
- Send check or money order — MasterCard & Visa accepted.
- Dealer inquiries welcome.

TANDY 200 IS A TRADEMARK OF TANDY CORP.

$139.00 each

PG DESIGN ELECTRONICS, INC.
Micro-Computer Peripherals

66040 GRATIOT, RICHMOND, MICHIGAN 48062 (313) 727-2744

WSPEC.DT uses only 695 bytes, which is 8 percent of the 8K 100's memory and only 3 percent in the 24K 100.

MANUAL LABOR

The manual is peppered with illustrations and contains a wealth of helpful explanations and applications ideas. However if you like the 100 manual for its clarity and succinctness, Write ROM's will be disappointing — even frustrating.

The tutorial manual is divided into chapters, beginning with the least difficult functions. Chapter organization varies, and the whole thing is poorly edited. Procedure instructions are blended with explanations, making it difficult to learn a function without plowing through non-pertinent information.

The documentation shows other evidence of hasty preparation. Our review copy sported an extra page five. The number of typos isn't overwhelming, but there are annoying inconsistencies. For example, the command "graph" followed by a letter varies — sometimes within one page — as GRPH M, Graph M or graph M. Another page alternates GRPH T with GRPH t.

The manual text is filled with advertising and grandiose claims. It's tiresome to look for instruction and get a sales pitch.

What's lacking is a quick reference guide. Page 14 mentions one but it wasn't listed in the table of contents. Apparently the glossary in the back is intended as that guide. It's a more succinct version of information in previous chapters and will suffice for more advanced users who don't need the lengthy tutorial chapters.

Chapter four describes global formatting handled by function keys. These standard text processing functions include page numbers, loading formatting specs and saving to cassette, accessing memory text, headers and footers, page layout and justification. The functions are easy to use — easier in some instances than Sigea Systems' Telecommuter — requiring fewer keystrokes and not exiting the program to make configuration changes.

What appeared to be a bug in the global search-and-replace command turned out to be an omission in the documentation. When my machine acted differently from the manual's description, and it appeared that search-and-replace had no repeat function, I called PCSG. They provided the missing information and the function tested fine.

CONNECT THE DOTS

Dot commands, which control format changes in parts of a document, are also simple to use. Also called embedded commands, they control margins, justification, centering, skipping lines, moving to next page, footers and headers, and line spacing.

Write ROM has useful dot commands. The command .UP followed by a numeral will skip that number of lines. This would leave space in a document for a photograph or other insertion.

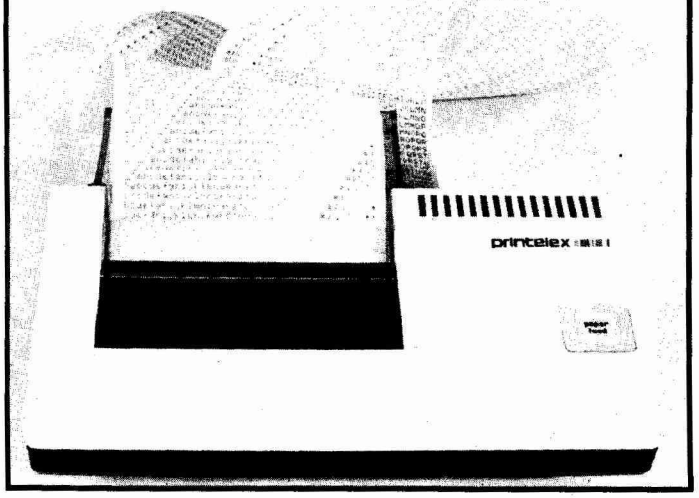
Another command creates "undented" paragraphs, or hanging indents. They're useful for sending documents via Easy-Link, which requires that commands be flush left.

The dot commands test well with one exception. When the global header command is on, the dot command to remove the header from the first page isn't read. This isn't a bug — the manual says it won't work. What *is* a bug is that Write ROM misreads subsequent dot commands for headers, including them when you don't want them and eliminating them when you do. And if the first

PRINTELEX FOR PEANUTS

A printer for your hand held computer, telex communication, home computer, banking application, medical instrumentation, point of sales application. Small enough to be hand-held, compact, slimline, lightweight, quiet, and portable.
*Ideal for Sharp, Epson, Atari, T.I., Commodore, N.E.C., Radio Shack and similar computers.

-Standard product comes with both Serial RS232 Asynchronous and Centronic parallel printer interface.
-Serial Transmission speed switch selectable for 110 Baud rate to 4800 Baud rate.
-Data transfer for speed upto 160 CPS.
-Graphic capability, 280 dots across.



Cables: Commodore Vic 20, 64, Epson HX20, NEC portable, Radio Shack TRS80-100 & Color Computer, IBM PC, Kaypro, Phillips, Thomson Brandt T07, 105, Standard Parallel, Serial RS232

computer peripherals

6400 Canoga Avenue-Suite 305, Woodland Hills, CA 91367, (818) 710-1717
Call Toll Free: Out of state (800) 854-7600, In California (800) 922-1113 Telex 194561 LSA

*Trademarks of Sharp Corp., Epson America Corp., Atari and Warner Communications Co., Texas Instruments, Commodore Corp., N.E.C. Corp., Tandy Corp., International Business Machines, Thomson Brandt Corp., Kaypro Corp., and Phillips Corp.

Circle 11 on Reader Service Card

header is eliminated by having the global header command off, Write ROM doesn't read subsequent dot commands to include it.

Aside from usual editing problems, documentation on these commands is good. Illustrated examples show how the screen looks and how the text will look on paper.

A quick reference guide is needed, especially for these dot commands. Chapter six does include a list, but it isn't easily accessed. If you stumble across the unreferenced appendix at the back of the manual, you'll find another list of dot commands mixed with other embedded commands.

The dot command chapter includes an illustrated section on outline technique using dot commands to vary indentations. The technique is unwieldy because each variation can't be set to tab but must be typed. For informal outlines TEXT's tabs are quicker. For professional outlines — proposals, for instance — Write ROM's technique is handy.

Not the first to have the pixel map feature — Covington's Text Power introduced page plotting — Write ROM's mapping capabilities avoid printing letters that occupy only the upper half of the page or memos that hug the bottom like a sunken ship.

THE RIGHTS IN WRITE ROM

Write ROM is unique because it's comprehensive — it combines many text formatters into one. Other unusual features include a library allowing recall of text blocks from another file using a graph symbol followed by a code or number. This saves inputting frequently used phrases. It's great for correspondence where salutations, introductions or closings are the same, with text changes. Another application would be for a series of proposals using much of the same background information.

Merge lets you address the same document to a list of names.

Write ROM's printing puts an end to typing in control codes. The 100 can be programed to read graph characters to control underlining, bold and other printing characteristics. The manual includes a list of codes for several common printers. It's in the appendix.

Bugs exist in Write ROM's printing capabilities, but they're minor. The documentation claims that when the "printer not ready" error is displayed, correct the problem and the printer will automatically print. In my experience, after a printer problem — lack of paper, for instance — was corrected, the printer didn't start on its own but required repressing print and F1.

The manual instructs you to choose a beginning page number as well as pages for starting and ending printing. None of these worked. The machine wouldn't accept any number but one for the first page, while the command to end printing was ignored.

AUTO PILOT TO TELCOM

TELCOM may be inadequate, as the manual states, when you need to send formatted text. Write ROM will send formatted text — but only via auto log-on procedures. It takes a lot of work to make transmissions automatic. And auto log ons can tie up considerable memory.

I asked PCSG why Write ROM didn't offer the option of sending formatted text via manual log-on procedures. They answered, "Print it to a RAM file. Then send it via TELCOM." A simple solution — but the manual doesn't provide it.

Write ROM's documentation hit bottom with the chapter on phone transmis-

(continued on page 55)

FTI
AMERICAN TECHNOLOGIES INC.

STATIMATE
ON-FLOOR
SPC SYSTEM
UNDER $900

For software AND hardware*

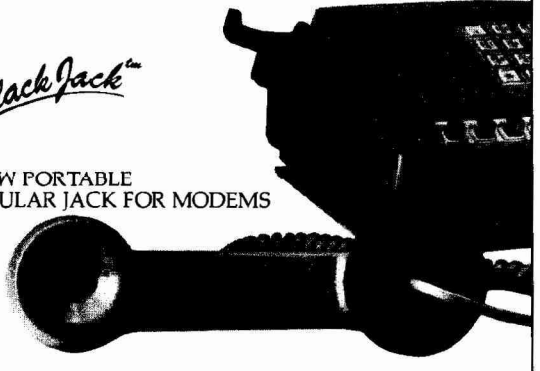
1. Up to 16 control charts simultaneously
2. Direct gage input
3. All types of control charts
4. Capability Analysis
5. Display screen
6. User friendly
7. Portable
8. Durable
9. Flexible - non dedicated hardware
10. Easy interface with most micros

*Statimate software from American Technologies Inc. designed to run on Radio Shack Model 100 32K Ram portable computer. Statimate software available separately for $300.00.

123 South Jefferson • Marshall, Michigan 49068
(616) 781-3014

Circle 5 on Reader Service Card

the BlackJack™



A NEW PORTABLE
MODULAR JACK FOR MODEMS

Have you ever been dealt out of telecommunications in hotels, offices and other places on the road? Why gamble on finding a telephone jack that will accept your modem. Deal yourself a winning hand with **the Black Jack.**

Simply unscrew the mouthpiece together with the microphone and carefully set them to one side. Attach **the Black Jack** on the handset, insert your RJ11C direct connect line cord from your modem and you're ready for action. You may now dial direct from your computer if your modem has Touch Tone® dialing.

If not, simply dial from the telephone itself. When your telecommunications are complete, snap off **the Black Jack** and replace the mouthpiece.

Price: $49.95.
For enduser orders contact: 1-206-881-7544
For dealer inquiries and
OEM information contact: **the microperipheral corporation**
2565 - 152nd Avenue NE, Redmond, WA 98052
(206) 881-7544

™the Black Jack is a trademark of The Microperipheral Corporation.

Circle 28 on Reader Service Card

Model 100 - NEC PC 8201A
Olivetti M10

Portable Software

AutoPack SPECIAL (Model 100 & NEC only) $89.50 -About all you need on one tape. Includes: **AutoPen, AutoPad, AutoBase, AutoSort, TFILE, TRIP, CALC** and **AutoPen N&A.** Over 50% off separate prices.

AutoPen (2.5K) $29.95 - Word processing using standard formats. 22 text commands for format control. Print from RAM, tape and keyboard; chain files, multiple copies; continuous or cut paper; and more features. Customize for your printer. Best available for size and price.

AutoPen, N&A (3.7K) $39.50 - Merges names, addresses and salutations into letters, prints labels and addresses envelopes. N&A data management system. Includes AutoPen.

AutoPad (5.4K) $39.50 - 26 by 99 spreadsheet. Variable column width and format. Math, statistical and financial functions. Sort, replicate, calculator and other features. Printer output with titles and footnotes.

AutoBase (2K) $29.50 - Database management for limited RAM. Design input forms using up to 16 fields. Use up to 9 keyword or relational field criteria to select records for display or printing. Print forms or specific fields in a list or label format.

AutoSort (.4K) $14.50 Sort single or multiple (AutoBase, N&A, INDEX, etc.) field records.

BOOK (3.8K) $29.50 - Single entry bookkeeping for self employed or small businesses using SCHEDULE C tax accounts. Summary review and detailed printer output.

TFILE (1.4K) $29.50 - Tape file utility to review, compute size, delete, and auto save or load files. Tape directory with printer output.

TRIP (2K) $29.50 - Itinerary, expense account and trip report. Review and printer output.

CHECK (2K) $29.50 - Maintains account balance and records. Review and printer output.

INDEX (3.4K) $29.50 - Sorts and prints multi column lists. Indexes page references.

CALC (.6K) $14.50 - Allows you to use your computer like a simple pocket calculator.

Add $2.00 for mailing and handling

COMPUTER ACCESSORIES
Send for FREE catalog

CSA Software, Box 22261
Chattanooga, TN 37422
Phone: 615-892-2339

DEALERS INQUIRE

MasterCard VISA

Circle 8 on Reader Service Card

WRITE ROM

TEXT FORMATTING COMPARISON CHART

Write ROM seems to do everything, and more. It's not just a print formatter, but also a word processor. Print formatters use plain ol' Model 100 TEXT to enter and manipulate data, including insertion of dot commands or other special format codes. When the document is complete, the print-formatting program is executed and the output is based on embedded codes.

Word processors on the other hand provide their own complete text entry and editing environments. They also include printing, file manipulation and other "menu-driven" features.

This table compares Write ROM's print-formatting features with those of six other Model 100 programs.

FEATURES	MODEL 100 PRINTER	LAPWORD	TEXT POWER 100	T.WRITER	JOURNALIST	WRITE ROM
price	30	40	50	50	75	150
required RAM	3.2K	3.3K	2.5K	7K	6K	.7K
output to serial (S), parallel (P)	S,P	S,P	S,P	S,P	P	S,P
FORMATTING						
centering		X	X	X	X	X
justified right margins		X	X	X	X	X
set right and left margins		X	X	X	X	X
set top and bottom margins	X	X	X	X	X	X
read tab characters	X	X			X	X
hanging indents		X			X	X
automatic page numbering	X	X	X	X	X	X
start numbering at any page	X	X	X	X	X	X
headers or footers		X	X	X	X	X
embed date or time	X			X		X
insert blank lines				X	X	X

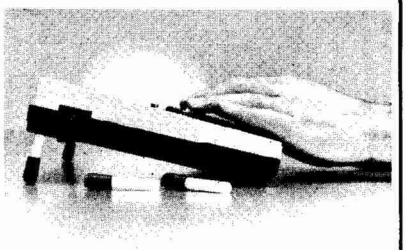
WRITE ROM

	MODEL 100 PRINTER	LAPWORD	TEXT POWER 100	T-WRITER	JOURNALIST	WRITE ROM
variable line spacing	1-2	1-2	1-2	1-10	1-9	1-∞
set page size	X	X	X	X	X	X
PRINTING						
pause between pages		X	X	X	X	X
print multiple copies		X	X	X	X	X
embed control codes		X	X		X	X
partial document printing	X	X			X	X
conditional paging				X	X	X
line feeds after carriage return	X	X		X		X
SPECIAL FEATURES						
word and byte counts		X				X
display line and page breaks		X	X			
file chaining					X	X
pixel mapping	X	X	X		X	X
merge multiple files		X	X	X		X
mailing labels	X	X	X	X	X	X
interactive questionnaires						X

Model 100 printer, Paramount Marketing
Lapword and Text Power 100, Covington Group
T-Writer, Traveling Software
Journalist, American Micro Products
Write ROM, Portable Computer Support Group

Circle 23 on Reader Service Card

PROP LEGS



- Elevate your Model 100 or 200 to the proper typing angle.
- Slip easily into rear screw holes in case
- Snug fit
- Non-skid rubber feet
- Durable plastic legs
- Handy — your Prop Legs fit in your pocket!
- Only $5.00/pair
  Includes shipping, handling, & CT residents sales tax.

Specify Model 100 or Model 200 legs, please (Model 200 legs are slightly shorter.)
Send check or money order to: RS23

KJM Development
P.O. Box 698, W. Hartford, CT 06107
AVAILABLE AT
RADIO SHACK COMPUTER CENTERS

Southern-fried Service!

For technical expertise and service that's faster than butter melting on a mocc o' grits, you can't beat the "Delker Difference."

We're not just whistlin' Dixie. When it comes to **TRS-80** computers, we mean serious business.

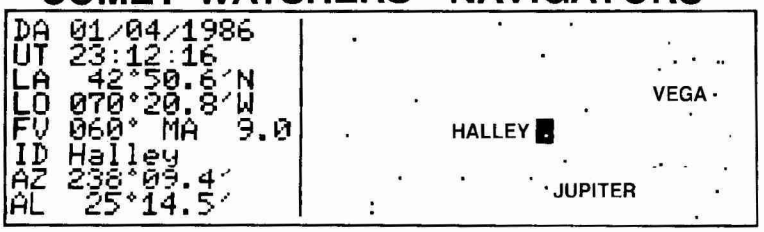
Y'all write or call:

DELKER ELECTRONICS

DELKER ELECTRONICS, INC.
P.O. Box 897
Dept P1
408C Nissan Blvd.
Smyrna, TN 37167
800-251-5008
800-545-2502 (Tennessee)
615-459-2636 (Tennessee)
615-254-0088 (Nashville)

Circle 16 on Reader Service Card

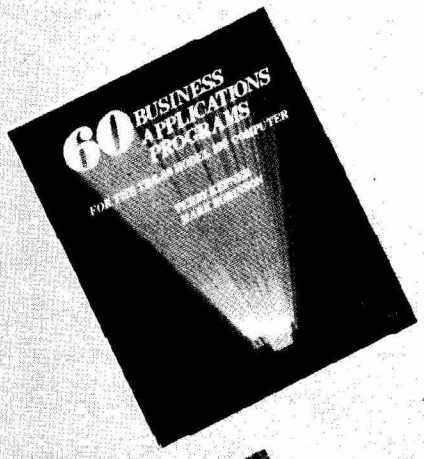
COMET WATCHERS – NAVIGATORS



Spot Halley's Comet among the stars, planets, Moon, and Sun, displayed just as you see the sky, at any time, from any place. Point out any of 180 celestial bodies with the cursor. ASTRO shows name, brightness, direction, and altitude. Manual and cassette for 24K TRS-80/100. **$39.95 + $2.00 S/H, Visa, M/C. Loquor Enterprises, 3 Heneage Lane, Hanover, NH 03755**
ASTRO – A PLANETARIUM IN YOUR LAP

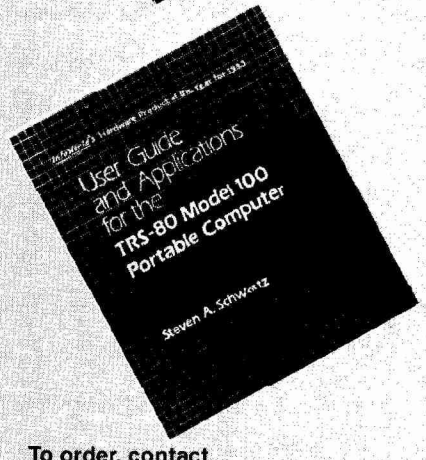
Circle 25 on Reader Service Card

Get down to business with your Model 100



60 Business Applications Programs for the TRS-80 Model 100 Computer

by Terry Kepner & Mark Robinson. Here are 60 powerful programs for interest calculation, annuities, depreciation, invoices, breakeven sales analysis, and much more. $17.95, (18052).



User Guide and Applications for the TRS-80 Model 100 Portable Computer

by Steven Schwartz. Gain expertise on the Model 100 with 14 ready-to-run programs for business. This package includes programs for statistics, graphics, sound, and more. $42.95. Or buy the book or cassette separately — the book is only $17.95 (15970); the cassette is only $25.00 (18075).

To order, contact
Scott, Foresman and Company
Professional Publishing Group,
Dept. PI

1900 East Lake Avenue
Glenview, IL 60025
(312) 729-3000

Circle 50 on Reader Service Card

ROM at the Top

Portable Computer Support Group (PCSG) deserves credit for taking Model 100 firmware from the realm of speculation to hard reality. With its introductions of Lucid, Disk Plus and now Write ROM, PCSG has demonstrated a commitment to extending the breadth of the 100's uses and the quality of its applications through read-only semiconductor media.

No one expresses this commitment more strongly than co-director Sam Redman: "It's time to introduce a new generation of products — and they're sure not going to be on cassette. Cassette is dead!"

FIRMWARE GENESIS

Write ROM started as a simple firmware version of PCSG's Write Plus, which is now sold through Radio Shack stores as Model 100 Scripsit. "But there's a lot of room for code in a 32K ROM," says Michael Stanford, Redman's partner and co-founder of PCSG. "We couldn't resist adding features."

Add they did. Although a working prototype of Write ROM was completed shortly after the introduction of Lucid in October 1984, Redman and Stanford chose not to release the product until they'd given company software engineers a chance to tinker.

The tinkering continued until January 1985, when added functions had completely filled the product's 32K ROM. "At that point we decided to wipe the slate clean and start over," remembers Stanford. "We were clear on what functions we wanted, but they'd all been added piecemeal. It was time to start from scratch and design a fully integrated program that would work just like our prototype, but more smoothly."

PCSG's programers weren't really starting from scratch, of course; they had their patched-together prototype as a model. "It was the best software spec you could wish for: a working program," says Stanford.

Write ROM 1.0 has already been shipped to several hundred of the first Model 100 users to order the product, Sam Redman says. But PCSG is holding some of the more recent requests in order to send version 1.1, which he calls the final version. PCSG produced its first, limited-quantity run of version 1.1 in mid-June.

"(Write ROM) 1.1 adds just one function to 1.0," Redman says, "but it in-

cludes a new manual and a few small operational changes. We learned from users that 1.0 was fully functional, but just wasn't user-friendly enough. So we now have the program think like the user, instead of the other way around."

Owners of Write ROM 1.0 can upgrade to version 1.1 at no charge by returning their ROM chips to PCSG.

PORTABLE SUPPORT

Any reporter who interviews Redman and Stanford quickly feels their contagious enthusiasm for anything connected with the 100.

"The Model 100 is nearly three years old," Redman says, "but the dealers we talk to say it's still selling steadily. It's outselling the (Tandy) 200 two-to-one."

PCSG's co-directors would like to take a lion's share of the credit for keeping the 100 alive long after most products of similar age have tottered off to the semiconductor scrapheap. "Tandy should have been the one to exploit the 100's expandability," says Stanford. "But they didn't — so we are. That's why we named the company Portable Computer *Support* Group. We're supporting the 100 and its users by expanding the computer's usefulness."

As evidence, Stanford cites PCSG's ROM Bank, an attachable device that will hold six 32K firmware applications at once, allowing the user to select a program by turning a switch. "We had working models all ready to produce," Redman says, "but found that when you switched memory banks without exiting a ROM application like Lucid it cold-started the 100. That's just not acceptable. So we've built in some semiconductors and software that store the current application before switching to another program." The ROM Bank is now completely debugged, Redman says, and ready to move into production.

"(With the ROM Bank) you're looking a 192K of plug-in ROM," says Stanford. "And our latest RAM expansion adds 96K of memory. Combine that with the 100's built-in 32K of ROM and 32K of RAM, and you've got more than 350K of memory."

"The first time we looked at the Model 100 we knew it had the potential to be a classic, like the Apple II," says Redman. "We're years away from finding the limits of how useful and powerful it can be."

— J.D. Hildebrand

3620 - 244 Street, Langley, B.C. V3A 4P6 Telephone 604-856-8858

Hardware, Software, Accessories

No more hassles with customs clearance
Write or phone for free price list
VISA - Master Charge

A service for Canadian users of:
TRS Model 100, Olivetti M10, NEC PC8201A

Canada Portable Computer

Circle 1 on Reader Service Card

PORTABLE EXPANSIONS

MODEL 100/200 EXPANSION MODULES!
SEE OUR FULL PAGE AD IN THIS ISSUE

TTXpress MODEL 1280 $170
Portable Thermal Printer
with cable $179

Half the size of a Model 100,
battery operated (4 "C" cells, internal), 2.2 lbs.,
uses 8½" wide white thermal paper, 40 cps unidirectional
(50 cps with A/C adaptor), 80 or 160 chars./line, condensed,
enlarged, emphasized, bit graphics, true descenders, underline, H/V tabs. . .

TTX Printer Cable for Model 100/200 or PC-8201A $15
The printer requires a cable unlike the normal printer cable.

Accessory kit for above $30
Includes A/C adaptor, 80 ft. roll of paper,
and a simulated leather case.

TTX Inc. is no longer the U.S. distributor.
We provide our own 3-month warranty, and as with all of our products,
we will support it now and in the future.

THINGS JUST FOR THE NEC PC-8201A

SideCar 32K RAM cartridge $199
Expandable to 128K

PSCALC $88
A spreadsheet program in a 32K ROM CHIP. Plugs into the ROM socket.

FREE SHIPPING, HANDLING, AND INSURANCE
for Cont. USA. Ordered today—shipped tomorrow UPS. 30-day total satisfaction,
money back guarantee. We honor Visa, M/C, AmExp, and Money Orders.
Checks held 3 weeks.

PURPLE COMPUTING

(800) 732-5012
(805) 987-4788 *(in Calif.)*

420 CONSTITUTION AVE., CAMARILLO, CA 93010

Circle 46 on Reader Service Card

TRS-80 Computer Society of Diablo Valley
P.O. Box 23438
Pleasant Hill, CA 94523

DISTRICT OF COLUMBIA

NASA Telemail TRS-80 Model 100 User Group
Code LID, NASA Headquarters
Washington, DC 20546
Contact: Pete Smith
(202) 453-8440

ILLINOIS

Northern Illinois NEC User Group (NINECUG)
105 North Ott Ave.
Glen Ellyn, IL 60137-5633
Contact: John Thill, Correspondant

INDIANA

LBBS (Leesburg Bulletin Board System)
Rt. 1 Box 263-10
Leesburg, IN 46538
Sysops Greg Stoddard and Darrell Young
(219) 834-4025 (BBS)

MASSACHUSETTS

Lap Computer User Group (formerly Boston.100)
Boston Computer Society
One Center Plaza
Boston, MA 021
Contact: Bill Gerber
(617) 367-8080

NEW JERSEY

NEC Room
Brick, New Jersey Citadel
Sysop Ted Mozer, CIS 75236,735
(201) 477-7263 (BBS)

NEW YORK

New York Lap Users Group
c/o George Mueden
310 West 106th St., Apt. 15D
New York, NY 10025
(212) 222-8751 or
Contact: Sarah Stambler,
CIS 72236,3352
(212) 222-1713

Portable Computer Message System (PCMS)
Software Riches
Riverview Terrace
Irvington, NY 10533
Sysop Jason Rich
(914) 693-0293 (BBS)
(914) 591-6470 (voice)

OREGON

Jefferson State Computer Users Group
P.O. Box 4335
Medford, OR 97501-0166
Contact: John Newman, President
(503) 535-1411 (weekends and evenings)

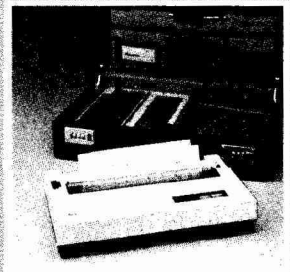
VIRGINIA

Metropolitan NEC Microcomputer Users Society (MNMUS)
7917 Hatteras Lane
Springfield, VA 22151
Sysop Arnold Smokler
(703) 321-8070 (BBS)
(703) 321-8888 (voice)

Northern Virginia TRS-80 Model 100 User Group (Nova 100)
For federal government employees and consultants
Contact: Michael Connick
(703) 476-9459 (6 p.m. - 7 a.m.)
(703)-661-5173

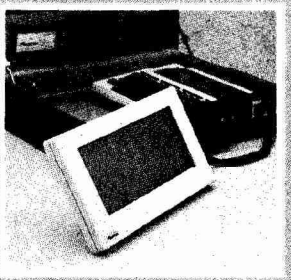
Introducing...
The Largest Selection of High Quality **Battery-Powered** Peripherals
Take Your Pick . . . With You!

ThinPrint 80™
40 CPS Thermal Dot Matrix Printer with Hi Res Graphics. Silent. Built-in Paper Compartment. 5 lbs.



ThinWrite 80™
50 CPS Dot Matrix Impact Correspondence or Near Letter Quality. Prints 3-part Forms and P.C. Graphics. 7 lbs.

ThinType 80™
15 CPS Bi-Directional Letter Quality Impact Printer. Fully Formed Char. Internal A/C Charge/Adapter. 7 lbs. (5 lbs. optional)



ThinView 25™
80 Char. x 25 Line LCD Intelligent Display System. Optional Tactile Input. Bit Image Graphics. 3 lbs.

Built-in Rechargeable Batteries save you time and dollars in replacements.
Proven parallel and serial interfaces on M100, PX-8, 2C, HP-IL and many others.

Axonix
The Portable Peripherals People
417 Wakara Way, S.L.C., Utah 84108

MasterCard VISA
Call Toll Free **800-821-7093** or 801-582-9271
DEALER INQUIRIES INVITED

Circle 3 on Reader Service Card

Richmond Area 100 Users Group
8140 Ammonett Drive
Richmond, VA
Contact: Robert L. Ripley
(804)-272-1560 (5:30 - 10:30 p.m.)

WISCONSIN

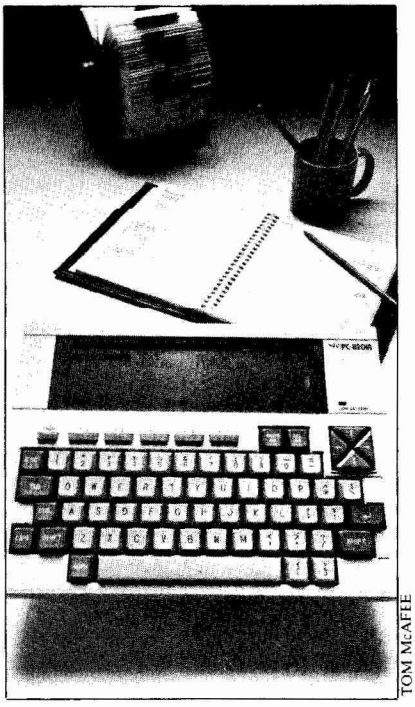
Rhinelander, Wisconsin
RBBS for NEC people.
(715) 362-3444 (data line, evenings)

ANOTHER BRKTHRU

A new online service from BRS Information Technologies also puts your machine through its paces. BRKTHRU includes over sixty-five data bases including an encyclopedia, professional journals, IRS tax publications and university profiles available at both 300 and 1200 bits per second (bps).

Charges include a one-time $75 subscription plus $17.50 to $125 per prime-time hour, depending on the data base used. Reduced evening rates are available.

Call or write BRS Information Technologies, 1200 Route 7, Latham, NY 12110, (800) 345-4277, or (518) 783-1161 in New York.



TOM McAFEE

NEC PORTABILITY PLUS

Many third-party software developers have created products complementing the NEC PC-8201A's portability. Below is a partial list of NEC accessories Portable 100/200 has reviewed and NEC Home Electronics has evaluated.

Touchbase Modem is an internal 300-bps modem, easy to install. The direct-connect modem plugs directly into the inside of the computer. (See Portable 100/200, March 1985.)

SideCar, a RAM disk that plugs into the PC-8201A systems slot, operates on two AA batteries. (See Portable 100/200, February 1985.)

Purple Computing's PSCALC is a ROM-based spreadsheet. Written in assembly language, the PSCALC ROM chip plugs into the 8201A's empty ROM slot inside the machine. (See Portable 100/200, April 1985.)

Black Jack is an adapter allowing users to direct-connect a modem with the PC-8201A from a hotel room, a phone booth or with a hard wire telephone system. (See Portable 100/200, October 1984.) □

Please help us rate this article's value. If you've found it very valuable, circle 128 on the reader service card. If it was moderately valuable, circle 129—and if it wasn't valuable to you, circle 130.

8K RAM

$29.95

+ $2.00 SHIPPING
No assembly required.

NEW

Machine language word processor for M100, M200, NEC 8201A. 3,280 bytes. $49.95 plus $2.50 shipping. $10.00 discount with RAM CHIP order.

Call or write The Covington Group / 310 Riverside Drive, Suite 916, New York City, NY. 10025 / 212-678-0064, 846-1700.

Circle 12 on Reader Service Card

TRS-80™

SAVE SALES TAX *PLUS DISCOUNT
*TEXAS RESIDENTS ADD ONLY 4½%

TANDY 200-72K

FORT WORTH COMPUTERS

WE ARE SERIOUS ABOUT SAVING YOU MONEY

(Located 30 miles from Fort Worth)
377 PLAZA • GRANBURY • NR FORT WORTH, TEXAS 76048

CALL FREE: 1-800-433-S-A-V-E

Monday thru Friday - 9:00 a.m. to 5:00 p.m.
(Order inquiries/Customer Service &) IN TEXAS: 817-573-4111

Circle 20 on Reader Service Card

IT'S THE INSPECTOR

Cleuseau ROM
BASIC debugger and text editor for Model 100
$95
Polar Engineering and Consulting
P.O. Box 7188
Nikiski, AK 99635
(907) 776-5529
Circle 109 on Reader Service Card

by ALAN L. ZEICHICK

The case: Model 100 is irreplaceable, but — has been found guilty of clumsy text editing skills and BASIC debugging tools. Assign Inspector Cleuseau to unravel the mystery.

Polar Engineering and Consulting offers the clues. Cleuseau, a Text Editor and BASIC Inspector on a read-only memory (ROM) chip adding dozens of useful features to the Model 100.

Cleuseau's functions fall into three categories: TEXT enhancements, BASIC supplements and software debugging utilities.

Installing the Cleuseau ROM is a simple process. A note accompanying the ROM indicated that the production chips would be mounted on a Molex "user-friendly" carrier which would mount only one way into the 100. However, the review unit used a small sheet of orange plastic as a circuit board and could have been easily inserted upside down into the accessory socket.

Once the ROM's installed, the BASIC command CALL 63012 enables the ROM and displays the word Cleuseau on the bottom right corner of the main menu.

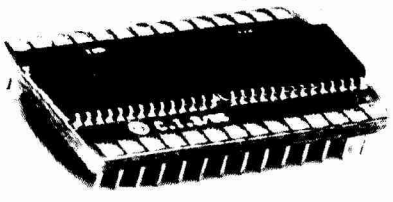
If the Cleuseau ROM is physically removed from the Model 100, selecting any menu command restores Microsoft's original TEXT routines to random-access memory (RAM). Cleuseau also can be disabled via software with the command CALL 911.

Cleuseau's additions to Microsoft's TEXT are easily called via control sequences. These supplements operate consistently with built-in TEXT editing functions.

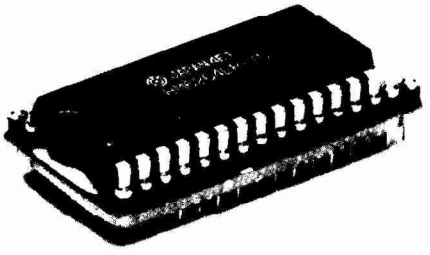
Backward Find, F4, complements the 100's normal F1 search operation by moving backwards through the document. This is augmented by Next String, Ctrl-N. Pressing this combination repeats the last search performed.

Cleuseau corrects a minor Model 100 bug. The F1 search operation usually won't locate double characters such as

24K Expansion RAM
For the Model 200
$150. each $275. for two



8K Expansion RAM
For the Model 100 & 8201
$35. each $99. set of 3



These Modules are easily user installable and they feature:

- Low Power CMOS Static RAM
- 30 Day Satisfaction Full Refund Policy
- High Quality Sockets
- Instructions Include Test Program Listing
- One Year Warranty

M/C, VISA, Check or Money Order
Shipping-Add $1.50 UPS Ground
or $4.00 2nd Day Air.
CA Residents add 6% Sales Tax

Cryptronics, Inc.
11711 Coley River Circle, Suite 7
Fountain Valley, CA 92708
Phone: (714) 540-1174

Circle 13 on Reader Service Card

the OK in BOOK. The ROM function has no difficulty with this.

Replace and Search, keyed as PAUSE or Ctrl-S, allows more options than many desktop word processors such as WordStar and Telecommuter. The search operation may be either forward or backward through the file depending on the last use of F1 or F4. When no prior search was performed, the default direction is forward.

Replace and Search operates intuitively. Assuming the search direction is forward, the cursor is moved to the starting point of the search. Pressing PAUSE or Ctrl-S brings the String: prompt to line eight of the display or line seven if key labels are showing. Typing a search string and pressing Enter calls the Sub as: prompt. After entering the replace string, the bottom line briefly displays Working.

If the cursor originated on a matching string, it's changed to the substitution text. If an occurrence of the search string is located, the bottom display line shows 1 Found. Pressing Ctrl-Y tells Cleuseau to replace the text and search for another occurrence, while pressing Ctrl-N continues the search without replacement. Typing any other key cancels Replace and Search. Throughout the process the bottom display line counts the number of search strings located.

CHECK THE STATUS

A useful feature is Display File Status, Ctrl-D. Pressing this key combination returns the number of bytes, words and carriage returns between the cursor and the top of the TEXT file. To receive a count for the entire file it's necessary to use the Ctrl-DOWN key to move to the end of the document before typing Ctrl-D.

Ctrl-D works quickly, as do most of Cleuseau's features. It reported the size of a file containing 100 copies of one sentence in less than three seconds. The sentence was *The Quick Brown Fox Jumped Over the Lazy Dog*. The file was 4700 bytes, 900 words or 100 lines long.

Three control codes enhance the Select (F7) and Cut (F6) keys. Ctrl-U changes all text that's been SELECTed to capital letters while Ctrl-L similarly changes all text to lowercase.

Ctrl-E cuts SELECTed text and appends the text to the paste buffer. This has applications where it's useful to collect items such as names from a file. This feature would be more useful if the selected text weren't cut. Text removed accidentally is hard to recover without emptying the entire accumulated paste buffer.

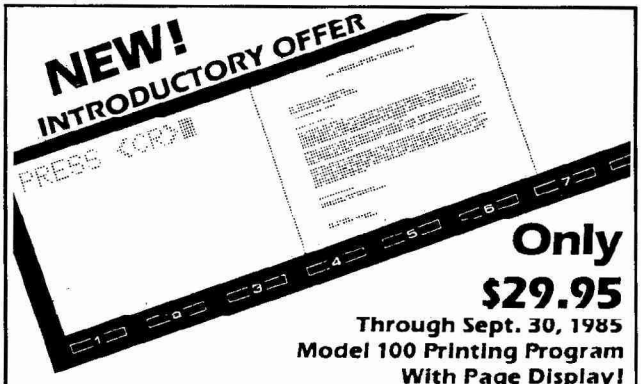
The Ctrl-O combination changes the keyboard from default Insert Mode to Text Overwrite. Text entered in Overwrite Mode rewrites the character beneath the cursor and advances the cursor forward. The Backspace key changes the character under the cursor to a blank and moves it back one position.

Control characters are handled the same in Text Overwrite as they are in standard Insert Mode. Pressing Enter or any control key inserts that code into the text.

A switch is also provided to turn off Cleuseau's features. Pressing Ctrl-J displays the message Microsoft Text. Until Ctrl-J is pressed again, no ROM additions can be used.

Cleuseau can check the accuracy of files saved to an external device. Pressing Ctrl-V and entering a file's name and device compares it to the working RAM file. Devices may be the cassette, modem, RS-232C or the Disk/Video Interface. After the comparison, the cursor

(continued on page 59)



- Machine-language fast!
- Parallel and serial printers!
- Compact: only 3K of RAM
- Auto line feed with one key press
- Set top, bottom, left, right margins
- Tabs, single/double space, page numbers

MONEY BACK GUARANTEE!

PARAMOUNT MARKETING, INC.
Box 14123, Tallahassee, FL 32317 (904) 656-1867

☐ Visa ☐ MasterCard ☐ Check or Money Order

Card # _____ Exp. Date

Name _____

Address _____

City _____ State _____ Zip _____

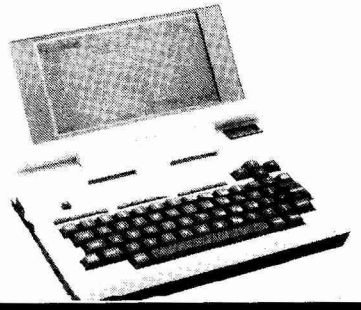
Price per program: $29.95 + $2.00 shipping

Circle 41 on Reader Service Card

TRS-80 ALWAYS AT SALE PRICES

COMPUTER CENTER **WE SHIP** *FAST!*
DFW COMPUTER CENTER
326-MAIN ST.,
GRAPEVINE, TEXAS 76051
(817) 481-SALE

OUR TRS-80s Have the Radio Shack warranty



To get YOUR SALE price CALL:
1-800-433-S A L E

Circle 15 on Reader Service Card

Contaminated reservoir is the only water within a 50-mile radius. LARRY HOLLON

seas requires advance preparation. Most telephone utilities are state-owned and local restrictions vary. Generally government permission and a European-standard modem are required.

European and American modems operate on different frequencies. The U.S. standard, Bell 103 for 300 baud, sends and receives on frequencies of 1070, 1270, 2025 and 2225 cycles per second. The European 300-baud standard, V.21, uses 980, 1180, 1650 and 1850 cycles. They don't shake hands.

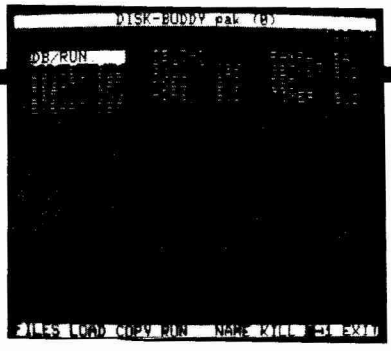
Access instructions for dialing into a data base must be secured from the local postal, telegraph and telephone authorities. While these problems aren't insurmountable, some people do telecommunicate internationally without difficulty. But it's wise to check the United States embassy in the country before departure.

Uploading to an office microcomputer was likewise futile. Interference from an undetermined source interrupted the computer's operating system in one instance. A series of power surges in Dakar's usually reliable electrical system had blown the surge protector and the staff refused to plug in the machine without it. Power surges and outages

Civilize the DISK/VIDEO INTERFACE
MAKE SAVAGE THE MODEL 100

NOW AVAILABLE FOR THE MODEL 200

With DISK-BUDDY software for your D/VI, only function keys need touch your disk files!



Twelve programs for one low price, work together to give the TRS-80 Model 100 unique disk file handling abilities. Access disk files from menu, just like a RAM file. Commands you were tediously typing become simple function key selections. And that's just part of the power of the DISK-BUDDY PAK. It does things you can't:

- Create "superfiles" the length of the disk, over 170,000 bytes!
- Print out, or display on either screen, or copy to disk or other device, a disk data file *of any length*, **WITHOUT USING ANY ADDITIONAL RAM!**
- Furthermore, transfer records can be "filtered", an example:

  An address file on disk can contain more than 1300 entries. You can move to RAM, or screen, or printer, etc., those records which contain "California" and "Tennis" or whatever. Four logical modes of search are available.

- Also: Features to run, load, save, sort, kill, measure, append, and name, disk files and RAM files, and much more.

PCM Magazine (March, '85) said: " *an excellent buy*" . . . "*manual is extremely well written*" . . . "*will substantially increase the speed and ease of operation of the M-100 with the D/VI.*" PCM

That was the idea in the first place.

TO ORDER THE DISK-BUDDY PAK (disk and manual): Send name, address, and check or money order for $39.95 plus $2.00 postage and handling to the address below. (For COD's call: 212-243-2129)

BuddySystems
220 West 24th Street
New York, NY 10011

Circle 4 on Reader Service Card

are a common problem in many African cities.

From its colonial past Africa has inherited European electric utilities that operate at 240 volts. Unwilling to trust the NEC to a step-down transformer I relied on batteries even in the city. Most modern hotels have a 110-volt receptacle in the lavatory for razors but a word of caution is necessary: Use it only for shaving.

STATESIDE MISSION

If the NEC proved durable in Africa, it was in the United States that its versatility was to shine. It became an irreplaceable communications tool.

CWS was swamped by a tidal wave of telephone calls from the news media, people volunteering to go to Ethiopia and others who wanted to make contributions. From Senegal to Ethiopia the story is similar, with an important distinction: The Senegalese know hunger but not starvation. In Ethiopia starvation is rampant.

For $25 a month, CWS subscribes to the Telecommunications Network (TCN), an electronic cooperative for non-profit agencies using the ITT-Dialcom system. Services include electronic mail, telex, Official Airline Guide and press review transmissions.

I logged on with the small battery-powered NEC 300-bps external modem (Authentic 300 MD). It plugs into the NEC RS232 port and the telephone line with a modular jack and can be left on line when not in use.

Hardly high tech, it lacks auto originate and log-on functions, but dialing the telephone and switching the modem from "talk" to "data" is not prohibitive. It does the job.

And the job was to get information to staff people before they faced interviews the next day. Frequently I worked late at the office, carrying the NEC home and then sending updates to staff from my home telephone. The story couldn't be contained in routine office hours.

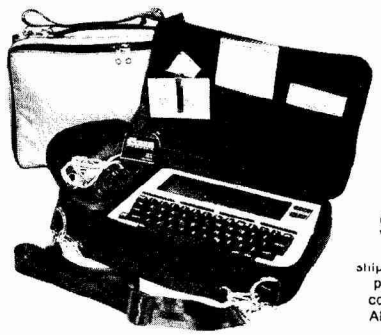
To save line charges messages were composed before uploading. Most data bases require a carriage return at the end of each line. TCN has a linesize command eliminating this requirement by automatically breaking a line at 55 or 65 characters.

Once on-line, uploading from the NEC is simple: Depress the upload function key, type the name of the file and hit Enter to start transmission. The document scrolls onto the screen as it's sent and the on-screen upload indicator is highlighted in reverse type. When uploading is completed the SEND command simultaneously places the document in the mailboxes of all recipients designated by user ID. To avoid garbled transmissions and text irregularities, documents should be formatted in TEXT and transmitted without embedded commands.

The speed of electronic transmission is invaluable. With only a few days notice we sent a midwestern film crew to Ethiopia, needing the footage distributed quickly when they returned. Once back the script was exchanged via electronic mail and the final production was available for distribution in a matter of days. In addition, electronic mail is less costly for us than air courier.

CWS writers occupy office terminals almost constantly so it was easier to use the NEC as a private workstation than to wait for a free terminal. Having installed six 8 kilobyte (K) memory chips from Purple Computing, the memory was sufficient to deal with most of the workload. When it wasn't, there was the option of uploading files to TCN and retrieving them when needed or saving

PORTABILITY



$59.95
(Add $2.50 shipping & handling per case in the continental U.S., Alaska & Hawaii add $3.50)

MADE COMPLETE

The **Chip-Tote™ PCD-1** *makes your TRS-80 Model 100, 200 or comparably sized briefcase portable truly complete. It's the first lightweight soft case that doubles as a desk.*

The **Chip-Tote™ PCD-1** *is constructed of rugged Cordura® nylon and our special closed cell foam, so you can be sure your computer and its accessories will get the maximum in protection. So next time don't leave the office behind — carry it with you!*

YES, send me: ____ PCD-1(s) in ____ Black ____ Smoke Grey
Name _____ Phone (____)_____
Address _____
City _____ State _____ Zip _____
Signature _____
☐ CHECK/MO (CA res. add 6% tax) ☐ C.O.D. (Add $1.65)
☐ M/C ☐ VISA _____ Exp. _____

KANGAROO VIDEO PRODUCTS, INC.
10845 Wheatlands Ave., Suite "C" • Santee, CA 92071-2856 • (619) 562-9696
ENGINEERED CASES FOR SENSITIVE ELECTRONIC EQUIPMENT

Circle 24 on Reader Service Card

Radio Shack Model 100 and NEC 8201
8K MEMORY MODULES
• Reliability and Lowest Power Guaranteed
$25.95 ea.

NEW NEC CARTRIDGES
DATAPAC™ Removable RAM Cartridge
• Unlimited, truly portable memory expansion
• 5 year, user-replaceable back-up battery
• Rugged, 4" x 4" x .7" design

32K	Specify Model 8201 or 8401	$ 89.95
64K	For STARLET™ (NEC 8401)	$129.95

• 30 day money-back guarantee
• 2 year warranty — 3 day service
• Free UPS 2ND DAY AIR shipping
• Quantity discounts available

PAYMENT: VISA OR MASTERCARD. Checks held 14 days, C.O.D. add $2. California residents add 6% tax.

VISA MasterCard

Call for immediate delivery (408) 462-3773

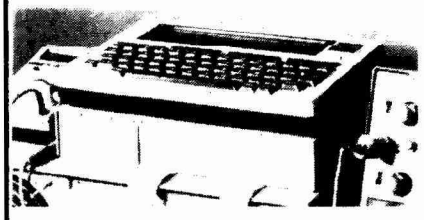
NODE COMPUTER SYSTEMS
720 CAPITOLA AVE., BLDG. D
CAPITOLA, CA 95010

STARLET™ is a registered trademark of NEC

Circle 31 on Reader Service Card

DATA ACQUISITION & CONTROL

Batttery powered interface for the Model 100. Gives Analog and Digital I/O capabilities to your Radio Shack, NEC or Epson. Whether in the lab or in the field, Data Acquisition and Process Control are now more affordable than ever. Easy to program using BASIC input and output statements. Systems from $549.



- Expansion boards available
  - High Accuracy 12 Bit Analog I/O
  - Digital I/O-Counter/Timer
  - Combination Analog & Digital I/O
  - Relays, TRIACS, Opto Isolator, Thermocouple, etc.
- Serial Interface available– communicates with any computer. (IBM, Apple, etc.)

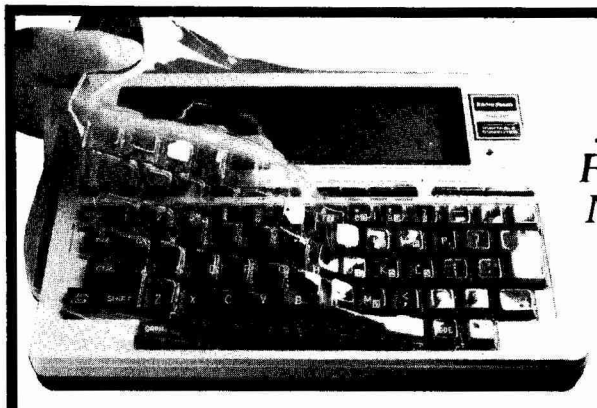
Complete PL-100 System includes:

- Expansion Chasis (holds 3 boards)
- Combination I/O board with
  - 16 Channel 8 or 12 Bit A/D
  - 4 Channel 8 Bit Analog Output
  - 4 Analog Level Sense Inputs
  - 16 Bits Digital Output
  - 16 Bits Digital Input
- Battery Charger / AC Adapter
- 2 Empty expansion slots
- Interface Cables
- Uses rechargeable batteries
- Provides power to the computer

Call the factory.

Circle 19 on Reader Service Card

ELEXOR ASSOCIATES
(201) 299-1615
P.O. Box 246,
Morris Plains, NJ 07950



NEW!
For Model 100
NEC PC-8201

SafeSkin™ **KEYBOARD PROTECTOR**

Finally! A keyboard cover that remains in place during use!

SafeSkin prevents costly downtime and repairs due to liquid spills, dust, smoke, cigarette ashes, paper clips, staples and other environmental hazards. **SafeSkin** is made of ultra-thin, ultra-tough, clear flexible plastic, molded to fit every key and contour, allowing normal key response and feel. This custom fit cover is easily removed for cleaning and gives years of dependable service. Available for the **Model 100, NEC PC-8201, IBM PC, XT, AT, Apple, C64** and many other popular computer models. Send 29.95, Check or M.O., Visa & MC include expiration date. Specify computer type. Dealer inquiries invited. Free brochure available.

MERRITT COMPUTER PRODUCTS, INC.
2925 LBJ Fwy., Suite 180 / Dallas, Texas 75234 / (214) 942-1142

Circle 27 on Reader Service Card

NEC RELIEF

them to cassette.

We prepared to send the first U.S. medical team to Ethiopia but their visas were delayed. We held the story, knowing it would get good coverage but unable to release it until we had the visas in hand and knew they were going. Finally word came: They were to leave that weekend and the story would be written on the NEC and sent to PR Newswire for immediate distribution.

The newswire service was notified to expect the release. At that time recipients of the news, editors specified by locale and speciality, were also included. With one transmission the release was distributed in minutes to print, radio and television editors nationwide. Less costly than the mail, the service is the only way to send late-breaking information. The first response came within thirty minutes after transmission.

The NEC also made other data bases more convenient. After sending a release about rehabilitation aid, I got an immediate call from a New York radio station requesting an interview. They had read about CWS in an article in an out-of-town newspaper which had said the agency's aid to Africa was premature. I needed to respond to clear up the issue but I was at home without access to the article.

From the NEC I logged onto CompuServe, called up the Washington Post world news and found the article. I was well-prepared for the interview the next morning.

In the office Radio Shack RS232 cables with null-modem adapters are left plugged into the NCR word processors. This enables us to upload or download directly between the NEC and NCRs. This is done by setting parameters in TELCOM using the same procedures as uploading to a data base. It can be done at 19,200 bps, an obvious advantage because it's a foreground function requiring an operator at the NCR.

The TERM utility program supplied with the NEC software tape is a handy way to save parameter sets in RAM for different data bases. Four sets are kept for addressing TCN, PR Newswire, CompuServe and an office terminal. Once a set is entered TERM can be selected from the main menu, displaying its own menu of names. Moving the cursor to the set preferred and pressing Enter places the set in TELCOM, automatically returning to the main menu. The correct parameters are ready for the next TELCOM use.

NEC RELIEF

SOFTWARE, HARD AID

At the height of the crisis we started special communication projects: videotape reports, print ads and radio and TV spots. Each had its own timeline and budget.

These were entered on the Traveling Project Manager by Traveling Software. While not a true PERT chart with force field analysis, it requires the discipline of outlining and budgeting each project. After tracking eight major projects on Project Manager it became a constant reference for strategic planning.

Another Traveling Software program has served well to format written documents. The Traveling Writer is a dot-command text formatter useful in preparing memos and reports on the road to be printed on a TTXpress portable printer or at home on a Brother HR-15. Frequently used, T-Writer is left in both banks of the computer's RAM.

In addition the MiniVC spreadsheet downloaded from CompuServe's Model 100 Special Interest Group (SIG) was useful for itemizing detailed expenditures and for creating "what-if" models. For example, one model tells how variations in per unit costs for video tapes will affect the budget.

An enchanced and expanded version called SPREAD on the SIG also is kept on the NEC. It's used for financial models loaded on a 32K RAM plug-in module to record travel expenses on the road.

The technology of the NEC lap-sized computer combined with all the resources it makes available has changed permanently the way we in our agency work together. It has introduced an ability, unknown to us before, to transfer information immediately and broadly. It has put powerful data bases and modes of communication at our fingertips.

The information age opens doors faster than we can walk through them. We haven't tried interactive teleconferencing, for example. Yet, all that was described here was developed in 10 short months. The NEC and its ramifications has enabled greater understanding in a fragmented world. □

Please help us rate this article's value. If you've found it very valuable, circle 125 on the reader service card. If it was moderately valuable, circle 126—and if it wasn't valuable to you, circle 127.

SUBSCRIBE NOW!
FOR 24-HOUR
CALL TOLL FREE

LAPSTAR

60 columns by 10 lines

Now! Available **NEC 8201** version N

The WORDSTAR* like text processor that lets your M100 / NEC8201 display 55% more text on the screen than before. Plus gives you many more text entering and editing commands than TEXT. *Now with free text formatter included.*

CISS CORP P.O. Box 27855 St. Louis, MO. 63146

ONLY **$74.95**

Circle 7 on Reader Service Card

*WORDSTAR is a trademark of Micro-Pro Inc. For 16k and larger machines.

8K RAM MEMORY MODULES

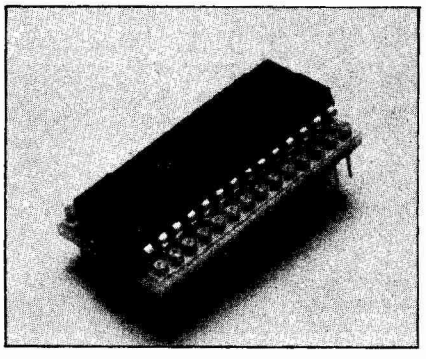
EXPANSION RAM FOR TRS-80 MODEL 100, NEC 8201 AND OLIVETTI M10 PORTABLE COMPUTERS

$34.95 Each

- Exact replacement
- Easy to install
- Installation instructions included
- High quality manufacturing
- warranty included
- uses 50% less back up power than other chips

$99.99 For Set of 3

DEALER INQUIRIES WELCOME
TRS-80 IS A TRADEMARK OF TANDY CORP.



P.G. DESIGN ELECTRONICS, INC.

66040 GRATIOT, RICHMOND, MICH. 48062 • (313)727-2744

Circle 59 on Reader Service Card

SPELLER 2

Proved Performance corrects spelling and typographical errors of "Text Do" files

$50.00

■

D SPELLER

Easy to use spelling checker for use with disk operating system. Large vocabulary capacity. Learns new words. Comes with a 1,000+ word dictionary for loading to disk or on a 5¼" disk.

$95.00

■

PSYCHI

A fun-to-use expert system which makes a psychiatric diagnosis.

$75.00

■

PAGE

Formats to printer text files on single or double line pages.

$15.00

■

All programs come on 5¼" disk or cassettes with documentation.

SOFTMATE

P.O. Box 15157
Portland, OR 97215-9998

503-238-1490

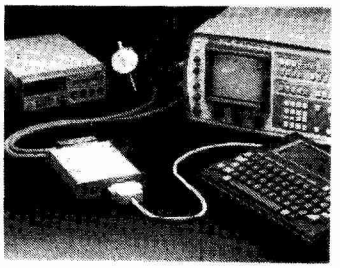
Circle 52 on Reader Service Card

TRANSLATOR (from page 21)

```
10  ' ***************
20  ' *             *
30  ' *  Translator *
40  ' *             *
50  ' *************** ' *** Initialize ***
60  CLEAR 5000
70  GOTO 120
80  PRINT TAB(4)" == HIT ANY KEY =="
90  IF INKEY$="" GOTO 90
100 CLS
110 RETURN
120 DEFINT A-Z
130 NWRDS=21
140 L2=200
150 C1$=CHR$(34)
160 C2$=CHR$(58)
170 C3$=CHR$(32)
180 DIM A(21), E$(21), E2$(200), CP$(200), E3$(21), SPAN$(21)
190 ON KEY GOSUB 2040:KEY(1) ON
200 HIGH=200
210 CLS
220 RESTORE ' *** Null arrays ***
230 :   FOR N=1 TO 200
240 :     E2$(N)=""
250 :     CP$(N)=""
260 :   NEXT N ' *** Read Difference Data ***
270 :   FOR N=1 TO NWRDS
280 :     READ A(N)
290 :   NEXT N' *** Read Spanish and English keywords ***
300 :   FOR N=1 TO NWRDS
310 :     READ E3$(N)
320 :     E3$(N)=C3$+E3$(N)+C3$
330 :     READ SPAN$(N)
340 :     SPAN$(N)=C3$+SPAN$(N)+C3$
350 :   NEXT N' *** Equalize length ***
360 :   FOR N=1 TO NWRDS
370 :     E$(N)=E3$(N)+STRING$(A(N), 32)
380 :   NEXT N
390 DATA 0, 2, 0, 2, 0, 2, 1, 1, 1, 1, 0, 3, 2, 2, 1, 3, 1, 0, 1,
    1, 1
400 DATA IF, SI, RUN, CORRA, INPUT, ENTRE, LIST, ALISTE, END,
    FIN, PRINT, IMPRIMA, READ, LLEVE, DATA, DATOS, THEN, LUEGO, FOR,
    PARA, STOP, CESE, NEXT, PROXIMO
410 DATA CLS, BORRE, GOTO, VAYA A, RESTORE, RESTAURE
420 DATA GOSUB, VAYA SUB, RETURN, RETORNE, ON, EN
430 DATA STEP, GRADA, REM, NOTA, LET, HACE
440 FLAG=1 ' *** Instructions ***
450 PRINT TAB(4)"SPANISH-ENGLISH PROGRAM TRANSLATOR"
460 PRINT TAB(5)"Do you want instructions (Y/N)?"
470 A1$=INKEY$
480 IF A1$="" THEN 470
490 IF A1$="Y" OR A1$="y" THEN 520
500 IF A1$="N" OR A1$="n" THEN CLS: GOTO 1000
510 GOTO 470
520 CLS:PRINT
530 PRINT " This program allows Spanish-speaking"
540 PRINT " students to write programs using"
550 PRINT " Spanish keywords instead of the "
560 PRINT " English equivalents. Tiny BASIC key-"
570 PRINT " words may be used.  Line numbers"
580 PRINT " between 1 and 200 may be used."
590 GOSUB 80
600 PRINT " To edit any line, just re-enter that"
610 PRINT " line number and add new line"
620 PRINT " Other BASIC keywords not translated
630 PRINT " may be used with normal syntax rules"
640 PRINT:GOSUB 80
650 :FLAG=1:GOSUB 790:FLAG=0
660 CLS
670 PRINT "  A typical program:"
680 PRINT " 20 SI A$=";C1$;"JOSE";C1$;" VAYA A 40"
690 PRINT " 30 CESE"
700 PRINT " 40 IMPRIMA ";C1$;"HOLA JOSE";C1$"
710 PRINT " 50 FIN"
720 GOSUB 80
730 FLAG=0
740 CLS
750 GOTO 1000
760 GOSUB 780
770 GOTO 1000
780 '
790 CLS
800 PRINT "Ahorre(ahorrar una programma)"
810 PRINT "CARGE (cargar una programma)"
820 PRINT "ALISTE(Alistar una programma en espanol)"
830 PRINT "LIST  (Alistar una programma en ingles)"
840 PRINT TAB(4)"AYUDA,CORRE,NUEVO,BORRE"
```

```
850  GOSUB 80
860  CLS
870  PRINT "IF=SI       RUN=CORRA    INPUT=ENTRE"
880  PRINT "END=FIN     LIST=ALISTE  PRINT=IMPRIMA"
890  PRINT "READ=LLEVE  THEN=LUEGO   NEXT=PROXIMO"
900  PRINT "DATA=DATOS  GOTO=VAYA A  RESTORE=RESTAURE"
910  PRINT "FOR=PARA    STOP=CESE    CLS=BORRE"
920  PRINT "ON=EN       STEP=GRADA   GOSUB=VAYA SUB"
930  PRINT "REM=NOTA    LET=HACE     RETURN=RETORNE"
940  PRINT TAB(6)"== Hit any key ==";
950  IF INKEY$="" GOTO 950
960  CLS
970  IF FLAG=1 THEN RETURN
980  CLS
990  RETURN ' *** Get Keyboard Input ***
1000 PRINT">";
1010 P1=0
1020 LINE INPUT A$
1030 TEMP$=""
1040 FOR N1=1 TO LEN(A$)
1050 T$=MID$(A$,N1,1)
1060 T=ASC(T$)
1070 IF T>96 AND T<123 THEN T=T-32
1080 TEMP$=TEMP$+CHR$(T)
1090 NEXT N1
1100 A$=TEMP$
1110 CD$=LEFT$(A$, 4)' *** Check for Command ***
1120 IF CD$="ALIS" THEN 1550
1130 IF CD$="AHOR" THEN 1710
1140 IF CD$="CARG" THEN 1840
1150 IF CD$="LIST" THEN 1970
1160 IF CD$="AYUD" THEN GOSUB 780: GOTO 1000
1170 IF CD$="HELP" THEN GOSUB 780: GOTO 1000
1180 IF CD$="CORR" THEN 210
1190 IF CD$="NUEV" THEN 210
1200 IF CD$="BORR" THEN CLS: GOTO 1000
1210 IG$=A$
1220 A$=A$+CHR$(32)
1230 B=INSTR(A$, C1$)
1240 C=INSTR(A$, C2$)
1250 IF C=0 AND B=0 THEN 1330
1260 IF B=0 THEN 1320
1270 W$=MID$(A$, B+1)
1280 P1=INSTR(W$, C1$)+B
1290 IF C<B THEN 1320
1300 IF C>P1 THEN 1320
1310 GOTO 1330
1320 IF C<>0 THEN PRINT"SOLAMENTE UNA DECLARACION CADA LINEA":
     GOTO 1000
1330 T$="" ' *** Check for line number ***
1340 :  FOR T=1 TO LEN(A$)
1350 :     IF MID$(A$, T, 1)=CHR$(32)THEN 1380
1360 :     T$=T$+MID$(A$, T, 1)
1370 :  NEXT T
1380 LI=VAL(T$)
1390 IF LI>L2 THEN PRINT"COMENCE LA LINEA CON UN NUMERO MENOS QUE
     ";L2: GOTO 1000
1400 IF LI<1 THEN PRINT"COMENCE LA LINEA CON UN NUMERO": GOTO
1000 ' *** Look for Spanish Keywords ***
1410 :  FOR G=1 TO NWRDS
1420 :     P=INSTR(A$, SPAN$(G))
1430 :     IF P>0 THEN 1490
1440 :  NEXT G
1450 E2$(LI)=IG$
1460 CP$(LI)=A$
1470 IF LI>HIGH THEN HIGH=LI
1480 GOTO 1000
1490 IF P<B THEN 1520
1500 IF P>P1 THEN 1520
1510 GOTO 1440
1520 L=LEN(E$(G)) ' *** Make Substitution ***
1530 MID$(A$, P, L)=E$(G)
1540 GOTO 1440' *** List Spanish Program Lines ***
1550 V=INSTR(A$, C3$)
1560 IF V=0 THEN 1620
1570 V2$=MID$(A$, V)
1580 V3=VAL(V2$)
1590 IF V3>0 THEN PRINT E2$(V3) ELSE 1620
1600 PRINT
1610 GOTO 1000
1620 CU=1
1630 CLS
1640 :  FOR N=1 TO HIGH
1650 :     IF E2$(N)="" OR E2$(N)="," THEN 1690
1660 :     PRINT E2$(N)
1670 :     CU=CU+1
1680 :     IF CU/14=INT(CU/14)THEN PRINT"EMPUJE < ENTER >";: INPUT E$
```


GPIB



GPNET model 10

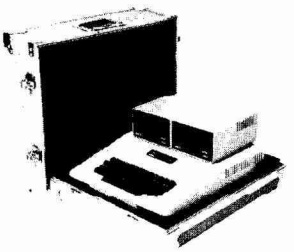
- CPU Z8 Single chip controller (8 MHz)
- ROM 4KB RAM 2KB
- GPIB Controller NEC uPD7210
- RS232C I/O (300-19200bps)
- IEEE 488 bus connector
- GPIB function:
  SH1 AH1 T6 TE6 L4 LE4
  SR1 RL2 PP0 DC1 DT1
  C1 C2 C3 C4 C7
- Power Supply: DC.5V 450mA DC 12V 30mA
- 126mm w x 29 mm h x 151 mm l
- 18 oz. weight
- $350.00

Does not require specific OS
Only BASIC needed to support network
GPNET 12V Power Unit available

NICTRIX CORPORATION
26 Court Street
Brooklyn, NY
718-522-4941
Dealer inquiries invited

Circle 29 on Reader Service Card

PROTECT YOUR APPLE . . .



IN A CABBAGE!

Now, take your computer with you anywhere you go . . . completely protected . . . in a custom-designed case by Cabbage. Any brand . . . including any peripheral hardware. We design . . . just for you.

Unsurpassed quality and craftsmanship . . . that's a Cabbage!

Best Protection for . . . Anything!

- Audio-Visual Equipment
- Electronic/Optical Equipment
- Computers
- Musical Instruments
- Medical Equipment
- Scientific Instruments

CABBAGE CASES
2458 Wood Avenue
Columbus, Ohio 43221
(614) 486-2495

"Nothing's Tougher . . . Than a Cabbage"

Circle 9 on Reader Service Card

```
1690 :  NEXT N
1700 GOTO 1000 ' *** Save Programs ***
1710 PRINT"NOMBRE DE LA PROGRAMA EN ESPANOL :":LINE INPUT NE$
1720 PRINT"NOMBRE DE LA PROGRAMA EN INGLES :":LINE INPUT NI$
1730 OPEN NE$ FOR OUTPUT AS 1
1740 :  FOR N=1 TO 200
1750 :     PRINT#1, E2$(N); CHR$(13);
1760 :  NEXT N
1770 CLOSE 1
1780 OPEN NI$ FOR OUTPUT AS 1
1790 :  FOR N=1 TO 200
1800 :     PRINT#1, CP$(N);'CHR$(13);
1810 :  NEXT N
1820 CLOSE 1
1830 GOTO 1000 ' *** Load Programs ***
1840 PRINT"NOMBRE DE LA PROGRAMA EN  ESPANOL :":LINE INPUT F$
1850 PRINT"NOMBRE DE LA  PROGRAMA  EN INGLES :":LINE INPUT F3$
1860 OPEN F$ FOR INPUT AS 1
1870 :  FOR N=1 TO 200
1880 :     LINE INPUT #1, E2$(N)
1890 :  NEXT N
1900 CLOSE 1
1910 OPEN F3$ FOR INPUT AS 1
1920 :  FOR N=1 TO 200
1930 :     LINE INPUT #1, CP$(N)
1940 :  NEXT N
1950 CLOSE 1
1960 GOTO 1000
1970 CU=1 ' *** List Programs ***
1980 :  FOR N=1 TO HIGH
1990 :     IF CP$(N)<>"" THEN PRINT CP$(N): CU=CU+1
2000 :     IF CU/14=INT(CU/14)THEN PRINT"EMPUJE < ENTER >";: INPUT
     E$
2010 :  NEXT N
2020 PRINT
2030 GOTO 1000
2040 CLOSE:END
```

To use the program the student types RUN and is shown a summary of the commands and statements available. This list can be summoned at any time by typing HELP or AYUDA at the > prompt. An existing program may be loaded from the appropriate RAM file by using the CARGE command. Prompts ask for the name of the program in Spanish and English, then a program can be edited or new lines added.

At any time a specific line in Spanish can be seen by entering ALISTE xxx, where xxx is the line number. The entire program will be presented one section at a time. Entering LIST will display the compiled English version. NUEVO (NEW) or CORRA (RUN) will erase the current program in memory so the user can restart.

The program was written for easy change-overs to other languages. To do this, substitute appropriate keyword translations equal to or shorter in length than the English equivalent. □

Please help us rate this article's value. If you've found it very valuable, circle 122 on the reader service card. If it was moderately valuable, circle 123—and if it wasn't valuable to you, circle 124.

ADD THE PICDISC TO YOUR PORTABLE* AND GET DESK TOP COMPUTER PERFORMANCE

SOFTWARE FEATURES:

- The industry standard CP/M 2.2™ operating system, which provides for access to all popular CP/M based software (including dBASEII™, Supercalc™, and T/Maker™).
- Complete Utilities Package includes:

  Filer — A menu driven LOAD/STORE program for transferring individual files (or total memory) to disc

  Modem — Public domain communications package (both terminal and disc file transfer modes)

  Utilities — DISKCOPY, COPY, FORMAT, and CP/M Utilities.

HARDWARE FEATURES:

- Lightweight (4.5 lb.) battery powered 3.5 inch micro-floppy system.
- 360K bytes/diskette (same as on the IBM PC).
- Approximately 20 hours on a single battery charge assuming normal disk access.
- 32K bytes additional RAM in the PICDISC — converting your portable to a 64K byte CP/M 2.2 microcomputer.
- Includes all cables, mounting hardware and battery charger.

Complete Hardware/Software System described above — Only **$599**

SAVE ON POWERFUL INTEGRATED SOFTWARE — when purchased with PICDISC:

T/Maker — an integrated software package that provides:

- Word Processing
- Spelling Checker with a 50,000 word Dictionary
- Spreadsheet
- Relational Database Manager

Complete System above **with** T/Maker for **$799** (T/Maker sold separately for $300)

*Immediately available for the TRS-80 Model 100 (portable must have 32K bytes RAM) and the NEC8201 and OLIVETTI OM-10 pending FCC approval.

Call or write: **PERSONAL INTEGRATED COMPUTERS (PIC)**
18013 SkyPark Circle, Ste. D., Irvine, CA 92714 (714) 261-0503

Circle 40 on Reader Service Card

sions. Its poor organization sent me scurrying back to the Model 100 manual for reassurance about the ease of telecommunications. Beginners are advised to become familiar with TELCOM and automatic log ons via the 100 manual before tackling the phone transmission chapter in Write ROM's.

GOOD FORM

The Form feature is one of Write ROM's best — and is unique among word processors. If your work involves extensive use of interactive questionnaires this feature alone makes Write ROM worth $150.

In essence the form feature turns the 100 into an interview clipboard. It lets you create screen prompts and preprinted forms.

The applications potential for this feature is tremendous in light of all the mobile form-wielders in our society. Fire departments and ambulance attendants, insurance and other salespersons, policemen, researchers and surveyors of public opinion would all find their jobs simplified with the use of Write ROM's Form.

Another exciting application of Form is answering customer inquiries. Stacks of letters can be answered by creating a master letter with prompts for the variable information.

Write ROM has several other nice touches. A file's word count can be seen in Write ROM's menu. Files can be KILLed or renamed quickly and easily from the menu, eliminating the need to go into BASIC. And the embedding of simple codes in text includes date, page number and time or week in printouts, eliminating the need to type in this information. This is nice for those of us who can rarely recall what day it is without consulting a calendar or a patient friend.

WRITE ON

PCSG's customer service people are friendly with Write ROM callers, but may not be much help. They were unable to answer questions about any of the bugs described above, but took down the questions with a promise to call back the same day. Two days went by before my calls were returned, but I was flattered when co-director Sam Redman responded. It was he who told me that the customer support people hadn't yet received training in operating Write ROM.

It was Redman who answered all my questions about real and suspected bugs. He assured me that the ones noted above have been corrected and that the new manual will be better edited and organized.

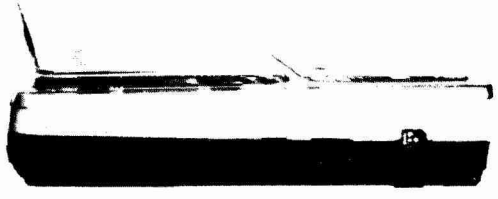
According to Redman, PCSG will ship Write ROM 1.1 — the upgraded version of Write ROM 1.0 — free of charge to Write ROM 1.0 owners *if* they request it and return their 1.0 version. There is no time limit for making this exchange.

For owners of Write ROM 1.0 who can't part with their unit while awaiting the arrival of 1.1, Redman suggests buying the upgraded ROM at full price, then returning version 1.0 for a full refund.

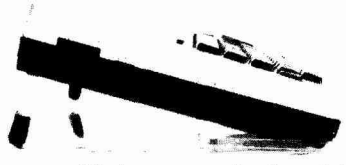
Write ROM delivers practically all that the advertising promises — and more. If you have limited formatting needs and don't send over the wires, its versatility and cost may be overkill.

But it's unbeatable for certain business applications: on-the-road proposal writing, traveling sales, questionnaires, forms and surveys. And as a general purpose text processor you couldn't ask for more. If you need desk-top function in a portable computer, write on with Write ROM. It's an excellent buy. □

THIS HARD COVER:



- *Prevents broken keys & scratched screen*
- *Blocks dust, spills & things that get dropped*
- *Protects your 100 from other items in a briefcase*
- *Creates the ultimate lap machine*
- *Is made of unbreakable Eastman PETG clear plastic*



+ Only $18.00
+ Includes Air Mail
+ Immediate shipment

30 day money back satisfaction guarantee
Chk. or M.O. TX res. add 5% Prop Legs not included
THE SOUTHWORTH CO. 4001 F HAWTHORNE AVE. DALLAS, TX 75219

Circle 54 on Reader Service Card

IT'S HERE!

Finally, an internal modem for your NEC-8201A

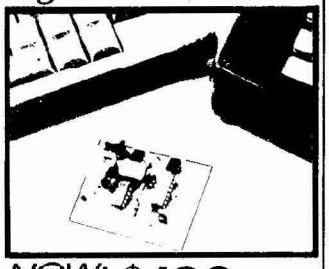
NEW *Now, the TouchBase Modem comes with Auto Dial and Auto Log On software!!*

TouchBase Design is proud to announce production of the TouchBase Modem—the ***only internal, direct connect modem*** designed for installation inside the NEC-8201A portable computer.

When using the TouchBase Modem, the phone line loops ***directly*** into the computer via an RJ 11 jack: dial the number, and you are on line! No extra batteries—the TouchBase Modem is powered by the computer, and virtually turns off (25 micro amps) when not in use. This unique design also allows the RS 232 port to be used with ***any other*** peripheral when the TouchBase Modem is not in use.

Installation is easy: by using the supplied instructions and a small screwdriver, the TouchBase Modem can be installed in about 10 minutes. Because of the friendly design, there is absolutely ***no*** soldering necessary.

The TouchBase Modem is ***the*** way to hit the road.



NOW: $129

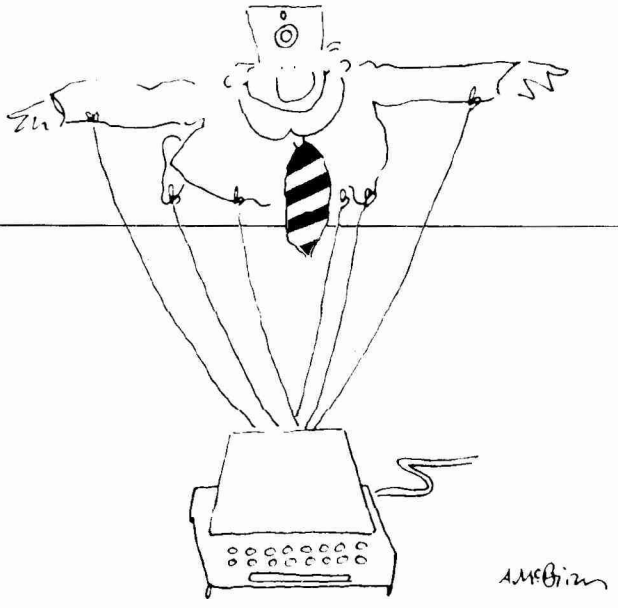
- Includes cable and software
- 30 Day Unconditional Guarantee
- Proven Operation

For dealer pricing information, please contact:

TouchBase Design
1447 South Crest Drive
Los Angeles, CA 90035
(213) 277-1208

Circle 55 on Reader Service Card

NEC TIES



Attention NEC'ers: You're not alone. The Model 100 Special Interest Group (SIG) on CompuServe isn't just for Radio Shack Model 100 and Tandy 200 users. NEC PC-8201A and Olivetti M-10 computerists are welcome anytime. Dozens of NEC owners frequent the forum, contributing programs, product information and usage tips.

The SIG data library DL7 (Figure one) is reserved for non-Tandy laptops. Approximately seventy-five files reside there, including short utilities, special NEC versions of Model 100 software, descriptions of NEC/Tandy differences and games.

The NEC's lack of a built-in modem shouldn't deter users from hooking up to such services as CompuServe. Any modem conforming to Bell 103/212 standards will make your connections.

SLICE OF THE PIE

The data libraries make up only one-third of the SIG. Another third is the weekly conference discussed in the May issue of Portable 100/200, page 12.

The last third, and most interesting, is the on-line message base. This message area contains the ever-changing dialog between laptop owners.

Two SIG functions essentially control access to the message area. The LEAVE (l) command allows messages to be created while READ (r) accesses messages individually, chronologically or by chosen keyword.

The READ command provides a great deal of flexibility in message checking. When reading, supply one of the options below. Note that *read* isn't the same as *r*. For more information about READ and its options, type *? r* from the Function: prompt.

rf - reads forward, chronologically

ri - reads numbered messages

rm - reads personal messages

rn - reads messages added since last rn

rr - reads messages in order, latest first

rs - reads messages matching keywords

rt - reads "threaded" messages, including query responses

figure one
NEC and Olivetti Files in SIG's DL7

XMODEM.NEC	–	Use XMODEM error-free file transfer protocol with NEC
XMODEM.DOC	–	Documentation for XMODEM.NEC
SPRED2.NEC	–	Special NEC version of SPREAD.WM3, spreadsheet featured in December 1984's issue of Portable 100
ROMCAL.TXT	–	Sample descriptions of NEC ROM calls
SHTL27.NEC	–	Space Shuttle Lander simulation game
SHTL27.DOC	–	Documentation for SHTL27.NEC
FORMAT.NEC	–	Text formatter for NEC PC-8201A
LINE.NEC	–	Adds Model 100's LINE command to NEC's vocabulary
LINE.DOC	–	Documentation for LINE.NEC. See also LINE.LDR
MEMAP.DO	–	Shows what's where in NEC's memory
DOWNCK.NEC	–	NEC version of DOWNCK.100
M10ROM.DIF	–	Describes differences between Model 100 and Olivetti M-10 ROM addresses
OLIM10.DIF	–	Techniques for 'porting Model 100 programs to M-10

After a message has been read, the SIG will present handling options. Other possibilities include:

ra - Read Again
re - REply to message sender
rr - Read Replies
t - Return to Top (Function:) prompt
ua - Use recipient's Address
d - Delete personal message (to save memory space)

Press Enter to continue reading a message. To discover how to use READ to find messages about the NEC PC-8201A, see Figure two. □

Please help us rate this article's value. If you've found it very valuable, circle 131 on the reader service card. If it was moderately valuable, circle 132—and if it wasn't valuable to you, circle 133.

figure two
Command to READ NEC Messages

```
Function: rs
Search field: subj
Search string: nec
Forum messages: 80206 to 80753
Start at what message number
(N for new to you): n
#: 80340 S7/NECy & Olly
     31-May-85 23:33:57
Sb: NEC MESSAGE
Fm: PORTABLE 100/200 76703,372
To: ALL READERS
This is a sample message about the NEC
PC-8201A. The READ command can
search on any desired keyword.
(UA RE T): t
Function:
```

ANNOUNCING!!!

100 MARKETPLACE 200

A New Classified Ad Section to Serve 100/200 Users

Got some hardware/software you want to sell or trade? Got a BBS or a User Group function to promote?

If so, then a classified listing in **MARKETPLACE** is for you.

Here's all you have to do:

1. Complete the coupon below (legibly, please!).
2. Include form of payment.
3. Mail to the address below.

Each number series (telephone, street, zip code, price, catalog, memory) counts as one word.

Minimum number of words is 18 (approx. 3 lines).

MULTIPLE INSERTION DISCOUNT: You may subtract 10% for each insertion after the first one.

DEADLINES: The day your ad and payment must be in our offices is on the 15th day of the second month preceding the cover month (in order to be in the August issue, copy and payment must be received no later than May 15).

MARKETPLACE Form

Please use this form to write your classified ad. Each space is one character. Please leave one space between words, numbers, abbreviations. If necessary, please start a new line rather than hyphenating a word. Make sure all your information is correct. Please count the words accurately, fill in the amount enclosed and credit card information or check the payment enclosed box. (Even if you place your order by phone, this form may help you organize your ad message and figure costs). Place in envelope, and mail today.

(This grid, if filled, is equivalent to a one-inch box. If you need more space, please use a separate sheet of paper. When filling the grid, please leave one open space between words.)

Number of words _____ × $2.00/word = $_____

☐ One Inch Box ($72) ☐ Screen Tint, add $10. Number of Insertions?_____

Name: _____

Address: _____

_____

Phone: (_____) _____

☐ Visa/MasterCard # _____ Exp. Date _____

☐ Payment Enclosed Amount $_____

Mail to: Portable 100/200 **Marketplace**
P.O. Box 250, Highland Mill, Camden, ME 04843
Telephone: 207-236-4365

Applications Assist (FREE!!)

WANTED: Any information (especially printed) that would help determine if a program written for the model 100 will run on the NECPC-8210A. Also wanted - info on specific differences between 100 and NEC. Conversion hints helpful. Write: A. Johnson, 108 Camp St., Middletown, CT 06451. Thanks!

Hardware

For Sale — M100 disk/video interface, used three months, $375. Jack Stegelman, 1311 Oak Rd., Catoosa, OK 74015. (918) 266-1540.

BUYING! Scrap, salvage & damaged Series 80 computers, modules and disk drives for failure analysis. Write detailing model number(s), CSI, 1575 5th St., Rennsselaer, NY 12144.

Carrying cases. Aluminum and composit types. Foam and/or partition interiors. Free catalog. Call or write IPC, 243 San Pedro NE, Albuquerque, NM 87108. (505) 256-3561.

Instruction

PIANO — Amuse your friends, educate the kids with keyboard sound/graphics. $15. Tom Wade, 6030 Fennell, San Diego, CA 92114.

MODEL-100 QUICK REFERENCE CARD. Instructions for all programs. No more flipping through your manual! Only $2.50. Eighty Computing, P.O. Box -154, Orinda, California 94563.

"Computer Writer." The Newsletter for writers who use computers. Dynamite. $3 sample. $15 yr. DENNIS, 1332 Manitoba -1, S. Milwaukee, WI 53172.

Services

Portable Computer Message System (PCMS) — Dial: (914) 693-0293, 8 Bit, No Parity, Full Duplex, 300 Baud.

NEED CUSTOM SOFTWARE? I can create it for the Model 100 or Tandy 200. Includes good documentation and support after the sale. Ref: PRN100 Text Formatter on CIS. Fast service. Most jobs $25-$250. Jim Irwin CIS:72346,1020 1329 Sprucebrook, Kalamazoo, MI 49004. 616-344-8838 Eves.

Situations Wanted

WANTED — User group for avid 100/200 users in the Kansas City area. Contact Tom Johnson, 10432 Monrovia, Overland Park, KS 66215.

Software

Pick football winners by computer using my basic formula and game statistics. $10. Howard Allen, Box 66, Middleburg, VA 22117.

NEC-PC8201 Software. Many Categories. Catalog $1.00 refundable w/order. Chris Reid, MCSC Software, 8486 Downs Road, Winston, GA 30187, 404-489-2119.

Perfect tool for the traveling salesperson, "CALL-BACK" helps you manage phone calls. Return calls by time zone (based on area code) and date. Reschedule missed calls. Log call-back attempts, elapsed time, and memo information. For 100/200. $39.95 for cassette & manual. Requires 16K machine. SOF/SUS, INC., 4306 Upton Ave., Minneapolis, MN 55410. (612) 929-7104. MC/VISA.

User Groups

CHICAGO — User group for 100/200 owners and compatible lap computers has been formed. Contact BBS, (312) 429-7544, or Ray Hendrickson, (312) 429-7522.

The Portable Accountant

Accounting System

for the Model 100/200

- Allows More Time for Professional Services
- Improve Report Turnaround
- Speed Client Writeups
- Reduce Errors

The PORTABLE ACCOUNTANT provides a fully integrated accounting system for any small business featuring:

Cash Disbursements Journals
Cash Receipts Journals
General Journals
Detailed General Ledger
Trial Balance
Automated Backup
Automated Balance Forward

Mail to:
The Portable Accountant
FACS, Inc.
Box 2132, White Flint Mall,
Kensington, Maryland 20895
301-933-7092

☐ Enclosed is my check for $99.95.
My Model 100 is a:
☐ 8K ☐ 24K ☐ 32K

Signature _____

Ship to:

Name _____

Street _____

City/State/Zip _____

☐ Please charge $99.95 to my
☐ ☐

Account # _____

Exp. Date _____

Circle 22 on Reader Service Card

CONTINUOUS TRANSFER (from page 13)

```
100  'CASSETTE FILE TRANSFER - "CASS.BA"
150  'CASSETTE -> MODEL 100 -> DESKTOP
200  CLEAR:MAXFILES=3:DEFINTA:CLS
300  PRINT" ";STRING$(38,"-")
400  PRINTTAB(9)"Cassette File Transfer"
500  PRINT" ";STRING$(38,"-")
600  PRINT@122,"Reading cassette, transferring files."
700  PRINTTAB(10)"Enter Break to stop."
800  OPEN"CAS:"FORINPUTAS1
900  OPEN"COM:5712e"FOROUTPUTAS2
1000 ONERRORGOTO1300
1100 PRINT#2,CHR$(13);STRING$(3,10)
1200 A=ASC(INPUT$(1,1)):OUT200,A:GOTO1200
1300 RESUME1400
1400 RUN
```

But batch processing is arduous and time consuming: load from cassette, save to communications, LOAD from CAS:, SAVE to COM:. And of course, don't forget to enter BASIC to clear RAM when available memory becomes filled.

Here's a BASIC program allowing the 100 to continuously transfer cassette files to a disk-driven desk-top computer. The program operates automatically until either the tape ends or the user interrupts data flow with BREAK or by shutting off the cassette.

SIMPLE AND AUTOMATIC

Since automatic transfer is simple, it's easy to get carried away. Take care to prevent creating files on the second computer too large to fit in the text buffer of its word-processing program.

The program sets the 100 to receive data from cassette by treating the cassette recorder as just another file called CAS:. It then sends it out through another file called COM:rwpbs. The lowercase letters mean the following: r=baud rate, w=word length, p=parity, b=stop bits, s=XON/XOFF status.

COM:rwpbs is the RS-232 serial communications port which is linked to the second computer's RS-232 port by means of a cable. Needed is a telecommunications package such as Crosstalk by Microstuf on the second computer to receive data being transferred from cassette via the 100.

FILE HUNT

Although the program is designed to transfer groups of files, it can be modified to hunt for a particular file on the tape and transfer it to the second computer. This can't be done by simply using the input statement to prompt for the file name, then sticking CAS: on the front of that name for use after the open statement on line 1200. This would result with no file name on line 1200, and the program's stopping with a no matching file (NM) error message.

This is because CAS: is a term reserved by the system and can't be used as a string variable in BASIC. If retrieval of a specific file is needed from a cassette with this program, the edit program is used. Insert the file name on line 800 right after CAS: and change the RUN command in line 1400 to END. The result is CAS:<file name>.

But the point of this program isn't to transfer a single file to a second computer. It's to transfer continuously copious files that collectively take up more memory than the 100 has. If only one file is to be transferred, it's easier to use the batch-transfer process already built into the machine. (Use F2 while in TEXT to get the load-from prompt, Enter CAS:, file name and use TELCOM to transmit it to the second computer.)

BLOCK READ

The A=ASC (INPUT$(1,1) statement on line 1200 reads one character at a time. In actuality, single characters aren't read from the cassette. Instead the tape is read in blocks of 256 characters which are transmitted as a block to the second computer.

The program is told to transmit at 1200 bps (about 120 words a minute), but the actual speed is limited by the rate of data transfer from the slower moving 500 bps-cassette player. Still, transferring continuously is faster and simpler than doing batch-transfers. This program saves the problem of having to erase valuable files in order to make room for new ones transferred from cassette. Conveniently the program takes in only 256 bytes at a time, and reuses the same space for the next 256 bytes. ☐

Please help us rate this article's value. If you've found it very valuable, circle 116 on the reader service card. If it was moderately valuable, circle 117. and if it wasn't valuable to you, circle 118.

is left at the bottom of the TEXT file to indicate a perfect match. The cursor stays on the first non-matching character if there are discrepancies.

SAY IT AGAIN, SAM

The Escape key repeats any key any number of times. Pressing Escape brings the Repeat Count: prompt. The count may be an integral value or R for Repeat Until Error. Cleuseau prompts for the next key to be entered.

The repeat feature increases the utility of most editing functions. The key to be repeated may be PAUSE or Ctrl-S, in which case many or all strings may be replaced automatically. If PASTE is used, multiple copies of selected text are inserted into a file. If Enter is pressed, many carriage returns are added. The possibilities are endless.

The repeat PASTE function was used to create the 100-line Quick Brown Fox file. The entire process took three minutes and 40 seconds.

Cleuseau shows its friendliness with its online help command. Pressing Ctrl-X displays the prompt to Press any key. The next key depressed brings a one-line description of itself. Entering Ctrl-X as the help key displays a six-screen list of all text editing keys, including those not modified by Cleuseau such as TAB and cursor keys.

Cleuseau's additions to Microsoft BASIC are dot commands. Note that the TEXT additions described above work while EDITing BASIC programs. Most of Cleuseau's functions ask Sure? and require a Y before proceeding.

One TEXT command is misleading when editing BASIC programs. Ctrl-D, File Status Display, returns byte, word and line counts — but these are for the ASCII version of the program being edited, not the true BASIC code.

Four dot commands compress BASIC program to occupy less RAM. In-line comments beginning with the REMark statement or a single quote are deleted by .DELCOM. GOTO, GOSUB and other branches to comments are directed to the line following the comment.

Cleuseau fails to unlock one clue, however, and that is: What if the last line in a program is a REMark and another line branches to it? Cleuseau redirects the GOTO or GOSUB to line 0 — whether or not there's a line 0. If there's no line 0 the program might terminate with a undefined line error (?UL). If there's a line 0 the results might be disastrous. Polar Engineering says this problem will be repaired in the next release of Cleuseau.

The .SQUASH statement removes blanks, unnecessary end-string quotes and unneeded PRINT semicolons from all program lines except strings, comment and DATA lines. For example,

```
10 C = A + B:PRINT "C equals";C;"feet"
becomes
10 C=A+B:PRINT"C equals"C"feet
```

The .SQUASH statement handles multiple lines, literal strings, comments and other traps with ease.

The .PACK statement crams as many statements as possible onto single lines. The command won't add statements to the end of comments, branches and IF statements but will save significant amounts of memory — up to four bytes per program line.

The final program compressing function — .MIN — executes four commands in sequence: .DELCOM, .SQUASH, .PACK and .RENUM (discussed below). The Cleuseau documentation advises saving non-compressed versions of programs to cassette or disk. The compressions render programs hard to read and could make future corrections or modifications difficult.

The functional opposite of .PACK is .EXPAND. The command splits multi-statement lines, giving each segment its own line number. It's useful for modifying programs, especially when branches need to be changed.

The .EXPAND command ignores multiple statements following an IF statement. If no free line numbers are present, multi-statement lines remain unchanged or partially expanded.

GOT YOUR NUMBER

Two Cleuseau commands are involved in renumbering. The .RENUM command isn't equivalent to the standard BASIC function with that name. It renumbers lines within ranges — useful for programs organized by groups of line numbers.

REMarks are unalterable landmarks to the .RENUM function. If new line numbers conflict with current lines an error message is displayed and the renumbering operation is aborted.

The .MOVE command is similar to the conventional BASIC RENUM function, not found on the Model 100. Both .RENUM and .MOVE accept parameters for a range of lines to be renumbered, new starting number and counting increment. See Figure one for an example of these commands.

The .COPY function allows easy duplication of segments of program code without using the BASIC text editor. Branches within the range copied are

8K RAM MODULE **$28**

FREE
* Ramtest software and
* Prop Legs with order
* Shipping

ULTRA LOW POWER Omos design

Easy step by step installation instructions * 1 YEAR WARRANTY MC VISA COD MO ship same day
$28 ea or 3/$75
* WE SERVICE WHAT WE SELL *
HOBBYIST SPECIAL: Kit form all parts except 6264LP $16

ECONOMY COMPUTER CONCEPTS
Box 2047 N Babylon NY 11703
Voice: 516 587 6947
24 HR MODEM LINE: 669 4764
300 Baud 7 Bit No Parity

VISA MasterCard

Circle 18 on Reader Service Card

AMERICAN TECHNOLOGIES INC.

PRESENTING THE...

VIZIFLEX SEEL™

FOR YOUR MODEL 100

only . . . **$21.95**

You can SEE through it!
You can TYPE through it!

A clear, super-tough, form-fitted, protective plastic cover for the Model 100 portable computer.

Provides functional protection from foods, liquids and harsh environments. A must for the serious Model 100 user.

Will easily pay for itself by helping retain the original condition of your investment.

Send check or money order, or add $1.90 for COD shipment.

123 South Jefferson • Marshall, Michigan 49068
(616) 781-3014

Circle 6 on Reader Service Card

STILL HUNGRY?

LISTINGS, HERE! HEY, GET YOUR LISTINGS!

Spicy programs pepper the world of Tandy portable users . . . more than can be included in the pages of Portable 100/200 magazine. The magazine will continue to include listings—and for those with heightened cravings, the Editors are pleased to offer a monthly supplement of rich desserts.

The Portable Program Review will tempt you each month with a more'ish diet: more listings to run on the Model 100, Tandy 200 and NEC . . . more games . . . more utilities . . . more graphics . . . and home-cooked favorites.

Popular *pièces de resistance* from former issues will be brought back to savor. And all offerings, old and new, will be served by the Portable 100/200 magazine's technical staff who will be on hand to answer your questions.

The Staff also will upload each listing to the Model 100 SIG on CompuServe, *à la carte*.

Your 12-issue newsletter subscription will enhance the benefits of both a valuable magazine and computer. If you're a Portable 100/200 subscriber, you'll save 33 percent off the regular rate.

Regular Price: $29.97
Portable 100/200 Offer: $19.96

So if you feel the need to snack between meals, supplement your Portable 100/200 appetite with The Portable Program Review. Here's how to make the newsletter's next seating:

1. Locate the Portable 100/200 Reader Service Card in this issue.
2. Check the letter for The Portable Program Review newsletter.
3. Enclose the card with your check or money order in the amount of $19.96 for One Year (12 issues) of The Portable Program Review newsletter. Or you may pay by MasterCard or Visa. (Please be sure to include the card number and expiration date.)

Bon Appétit

figure one
.RENUM and .MOVE
Issued without Parameters.

Original program:

```
0   REM add two numbers
100 REM assign variables
101 A = 10
104 B = 15
200 REM calculate sum
215 C = A + B
350 PRINT C
```

After .RENUM:

```
0   REM add two numbers
100 REM assign variables
110 A = 10
120 B = 15
200 REM calculate sum
210 C = A + B
220 PRINT C
```

After .MOVE:

```
0  REM add two numbers
10 REM assign variables
20 A = 10
30 B = 15
40 REM calculate sum
50 C = A + B
60 PRINT C
```

updated to the new line addresses. Copy operations to occupied lines are aborted and display an error message.

The .KILL function deletes all lines within a specified range. Branch references to the deleted lines aren't affected and there's no way to recover accidently killed lines.

The final group of Cleuseau functions are used for BASIC program debugging. Four commands add "debugging points" to program lines. These points print, stop execution or display information at critical places. Use of these debugging points in lengthy programs allows a close monitoring of execution without affecting the subroutine return stack or clearing BASIC variables. Any number of debugging points may be set within a program.

The debugging points, while potentially very handy, aren't explained well in Cleuseau's documentation. Programers wanting to use Cleuseau for software development have to experiment to find useful applications of the following commands.

The .STOP command halts execution when program flow hits specified lines. Execution is continued with the BASIC command CONT, not the Cleuseau com-

mand with the same name.

Stopping a program for debugging purposes with .STOP is more useful than inserting the BASIC keyword STOP into the program. When the stop point is encountered, the line number and contents of the line are displayed. The command may be instantly inserted into any number of lines — and adding or changing stop points doesn't reset BASIC variables or the subroutine return stack.

The .STOP command, like .PRINT and .CONT below, can be specified to affect a single line, contiguous lines or all lines containing a specified string.

STOP OR I'LL PRINT

The .PRINT feature is similar to .STOP. Instead of halting execution a print point displays the current line number and contents of the subroutine return stack. The .PRINT output can be routed to various locations. The .LOG command instructs Cleuseau to display this information on the screen or send it to an open device or RAM file while .LLOG sends the print point data to the printer.

The .PRINT feature also can be used to emulate the TRON or TRACE ON feature found in other implementations of BASIC. If each program line is given a print point, execution will show each line number accessed in sequence.

The .CONT function cancels out a stop or print point, substituting a space-holding continuation point. The only way to delete debugging points is with the .OFF command, which removes points set within the current BASIC program.

This command is one of the few destructive Cleuseau BASIC functions which doesn't ask for confirmation before proceeding. It's possible to accidently delete several hours worth of work with no chance of recovery.

Executing a program containing debugging points from the main menu displays a syntax error in the line containing the first point encountered. Cleuseau only monitors keyboard input and misses the implied RUN command.

The debugging points are stored as special characters in the space after a line number. A vertical bar or pipe indicates a .STOP point, an underscore a .PRINT point and a tilde a .CONT point. These characters are displayed when LISTing the program or when using the BASIC text editor. They're also saved along with the code in ASCII files or on cassette.

There's nothing special about the .STOP, .PRINT and .CONT commands. Pipes, underscores and tildes inserted in the editor function just as well. Cleuseau does all the work when monitoring execution started with RUN, GOTO or GOSUB.

"Pretty-print" listings of BASIC programs are provided by .LIST and .LLIST. Single lines, ranges of lines or all lines containing a specified string may be displayed on the screen or output to the printer. Multi-statement lines are displayed with one statement per line for easy reading.

The automatic line numbering count is set by .STEP. Pressing Escape when in BASIC supplies a new line number equal to the previously referenced number plus the .STEP interval. This is similar to the AUTO feature found in other BASIC implementations.

To display the names and sizes of all files in RAM, use .FILES and .LFILES. This display includes the default BASIC file and the paste buffer. The files can be displayed on the screen or sent to the printer.

CLEUSEAU BUMBLES PAPERWORK

Although Cleuseau's 38-page preliminary manual is a handy command-reference guide, few hints are provided on how to use the ROM efficiently, especially for program debugging.

A two-page section on program debugging is provided but essentially summarizes the debugging point commands. And the few examples given throughout the manual aren't completely clear.

The Cleuseau ROM, although very handy as a text editor, won't substitute for a word-processing program. The ROM supplies no special printing features such as headers, footers or line numbers. It merely adds to the efficiency of Microsoft TEXT, making documents easier to enter and edit. A Model 100 with Cleuseau becomes an excellent "front end" text entry point — inexpensive, portable and very powerful. □

Please help us rate this article's value. If you've found it very valuable, circle 119 on the reader service card. If it was moderately valuable, circle 120—and if it wasn't valuable to you, circle 121.

IT'S ONLY 4½ LBS.
AND RARING TO GO!

The Tandy 200 is the one portable for all.

Meet the New Generation of Portable Computing

Our celebrated Model 100 set a new standard in portable computing. Now we've done it again! Introducing the Tandy 200, another true breakthrough, featuring advanced features *you* requested. You get more built-in software, a bigger screen and a larger memory. All this in a system that measures just $2^1/_4 \times 11^3/_4 \times 8^1/_2$", and goes wherever you go because it's completely battery powered.

Six Built-In Programs Including Multiplan™

For complex spreadsheet analysis and calculations, we put popular Multiplan software into the Tandy 200's permanent memory. It's easy to do sales forecasts, profit and loss projections, budgeting, pricing, engineering calculations and more.

Comes with Five More Powerful Programs

An improved version of the Model 100's easy-to-use word processing program makes the Tandy 200 especially useful for journalists, salespeople, students and anyone who needs to write letter-perfect memos, reports and correspondence in a hurry. Edit, delete and move blocks of text with the touch of a convenient function key.

Four other "instant-on" programs let you use the Tandy 200 as your personal appointment calendar, address and phone directory and telephone auto-dialer/directory (the Tandy 200 generates tone dialing pulses, so you can use it with long-distance services). A much more powerful built-in program for communications makes it easy to access other computers by phone, as well as national information networks. Resident BASIC language lets you write your own programs, too.

Why 40 Columns Are "Bigger" than 80

Take a look at the 80-column screens on other portables, and you'll see why we chose a 16 × 40-character format. Characters on 80-column displays are tiny and difficult to read. Tandy 200's flip-up liquid crystal display has 240 × 128 resolution for big, clear graphics and easy-to-read characters. Tandy 200 is the perfect take-along tool for word processing and spreadsheets—without eyestrain.

We also increased the standard memory size to 24,000 characters, expandable to 72K.

The Best in Technology for Under $1000

Whether you're a student, scientist, busy professional or home computer user, the Tandy 200 is a smart investment. The Tandy 200 even has parallel printer, RS-232C, cassette and bar code reader interfaces for added versatility. You can even add disk storage and a monitor for a complete desktop computer system.

Adopt One Today!

Step up to the powerful software and impressive capabilities of the Tandy 200 portable computer for just $999 (26-3860). Best of all, the Advanced Technology Tandy 200 represents the state of the art in performance, quality and price breakthrough (because we've introduced the latest technology for over 60 years). Stop by your local Radio Shack Computer Center, or participating Radio Shack store or dealer and "size it up" today!

Prices apply at Radio Shack Computer Centers and at participating Radio Shack stores and dealers. Multiplan/TM Microsoft Corp.

Radio Shack®
The Technology Store™
A DIVISION OF TANDY CORPORATION

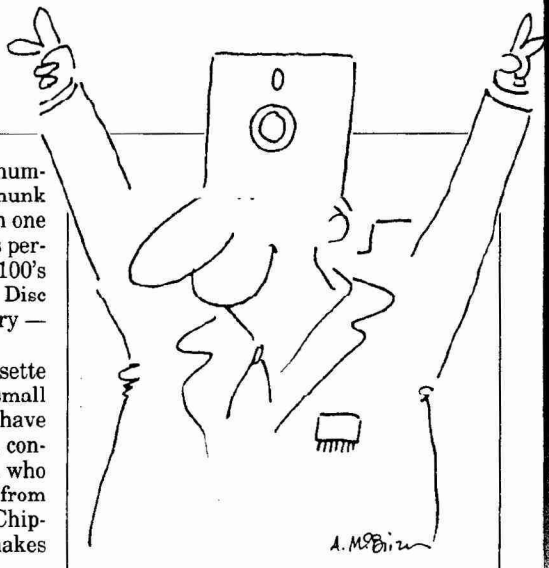
Circle 47 on Reader Service Card

Send Me a 1985 Computer Catalog!
Mail To: Radio Shack, Dept. 85-A-406, 300 One Tandy Center, Fort Worth, Texas 76102

NAME _____
ADDRESS _____
CITY _____ STATE _____ ZIP _____
PHONE _____

THE WIRE BY J.D. HILDEBRAND

PIC DROPS PRICE, ENHANCES COMPATIBILITY



Personal Integrated Computers (PIC) of Irvine, California has enhanced its portable microfloppy disk drive for the Model 100 while reducing the suggested retail price 25 percent from $799 to $599. The price change is effective immediately.

Also available immediately is a new, bundled operating system that allows the PIC Disc to work with the Model 100's built-in BASIC, TEXT, TELCOM and other firmware. The enhancement — a utility program named Filer — lets PIC Disc owners use plug-in ROMs and cassette-based programs, storing code and data on the drive. Previous releases operated solely under CP/M, which is incapable of sharing data and programs with Model 100 BASIC.

Although CP/M is still included, PIC has replaced the T/Maker integrated software package (formerly bundled with the drive) with a 3.5-inch disk containing Traveling Software's T-base, T-Writer and Idea.

T/Maker, which includes word processing, a spelling checker, a spreadsheet and a relational data-base manager, is still available as a $200 option, according to PIC president Ken Harlan. The company also has developed a Model 100 version of SuperCalc and "a few surprises," he says, to be offered later this year.

The PIC Disc was compared to Portable Computer Support Group's (PCSG) Chipmunk disk drive in the May 1985 issue of Portable 100/200. Reviewer John P. Mello Jr. liked the PIC Disc, but found its reliance on CP/M made it more like a desktop computer than an enhancement for the Model 100. "The PIC Disc seems to be based on the premise that what everyone really wants . . . is a desktop operating system," he wrote. "(It) treats the 100's firmware like a poor relation."

The PIC Disc's new low price and compatibility with the 100's built-in functions "certainly make the product more attractive," opines Mello, "especially if it could read and write Chipmunk disks. Right or wrong, PIC has to realize that the Chipmunk is the *de facto* standard."

PIC's Harlan disagrees. "It's certainly possible that there will be a large number of software releases in Chipmunk format," he says, "particularly from one vendor (PCSG). But that software's performance is constrained by the 100's 32K RAM limitation. The PIC Disc gives you 64K of contiguous memory — no other product does that."

Harlan continues: "Besides, cassette distribution is here to stay. Only a small percentage of Model 100 owners have bought disk drives, so vendors will continue to sell cassettes. Those users who have drives can load the programs from cassette, then store them on the Chipmunk *or* the PIC Disc — it really makes no difference."

Unlike the Chipmunk, which is an external unit, the 2.5-pound PIC Disc attaches to the side of the Model 100 via a mounting plate and velcro strips. "Users can carry the drive with them when they need it," Harlan says, "or disconnect it in a matter of seconds and leave it behind."

GE Sees the Light

The Lighting Business Group of megacompany General Electric provides consultation services for business customers regarding lighting needs and energy consumption. The group's 170 field sales personnel use NEC PC-8201A computers to perform cost analyses and design office lighting systems.

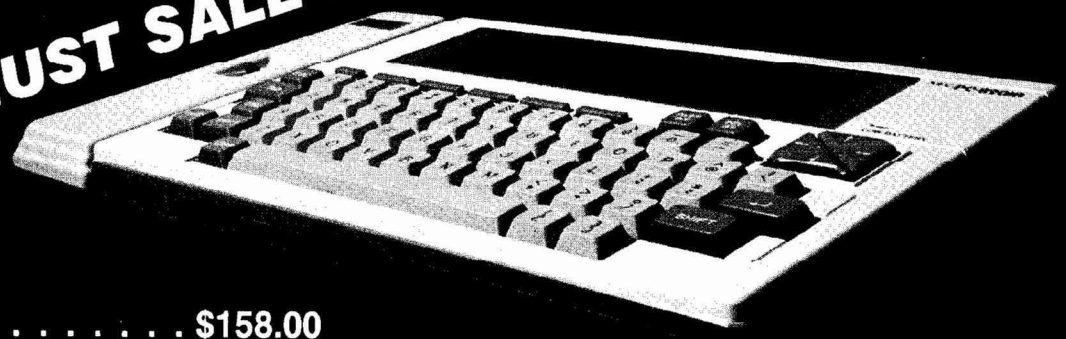
A bulletin forwarded by the lighting business group's J.A. Fredrickson shows that GE has put a lot of thought — and sophisticated analysis — into business lighting. Did you know that detailed drafting and cartography requires about 150 foot-candles, compared to just 20 foot-candles in elevators and stairways (but: washrooms should be lit at the 30 foot-candle level)? Or that lighting levels should be adjusted based on the age of the worker, the importance of the task, the task's difficulty and the task background reflectance level? Or that a federal government study shows that clerical workers' productivity drops by 28 percent when office illumination is reduced to 50 foot-candles from 100 foot-candles? Or that the loss in lighting efficiency required by luminaires, louvers and diffusers is often offset by improved visual comfort or appearance?

The point — as GE sales professionals are quick to point out to prospective customers — is that a small, inexpensive improvement in office lighting can pay for itself in improved productivity.

Enter the Model 100's cousin, the PC-8201A. The NEC allows lighting salespeople to evaluate relamping (honest, that's the word GE uses) options based on a business's operating hours and the mortality and lumen depreciation rates for different lamps. In a matter of minutes, the NEC reports on spot vs. group relamping options, what relamping timetable is most economical, how much light will be produced for any program selected and what the bottom line will be in cold hard cash.

In addition, GE's Fredrickson notes, the NEC is used for word processing and — to an increasing degree as home office mainframe capabilities are expanded — electronic mail. Salespeople carry program cassettes with them or download software via modem from corporate mainframes. □

AUGUST SALE PRICE!



32K $158.00
64K $179.00
96K $219.00
128K $259.00

OFFER GOOD TILL SEPT. 15

NEC 32K vs. SIDECAR 128K

Up To 192K Of Memory On-line For Your NEC PC-8201 Means Goodbye To Unreliable Cassettes, And Bulky Disk Drives.

The problem with most portables is utility gets sacrificed for portability. Only being able to take 32K of files with you is a real pain. Things like form letters, data bases, spreadsheet layouts, and other files have to either be left behind or you have to mess with external storage devices. The inconvenience of having to bring along cassette players, and disk drives (not to mention the hassle getting them to work) can make you wonder why you brought this "productivity tool" in the first place.

THE NEC SOLUTIONS

The NEC PC-8201 has two solutions for this problem. First it has the ability to house up to 64K of RAM inside the machine. Through a technique called "bank switching" you can access up to three different 32K "banks" of memory: two inside the computer and one in a plug-in cartridge. This is a big improvement. But the problem here is each additional 32K cartridge from NEC costs $395.

PURPLE'S SOLUTION

Many of you will remember us as the first company to manufacture an aftermarket 8K memory module for installation inside the computer. This product was so successful that other companies copied it. Our customers kept asking for more storage, and the result is our SideCar™. It uses a bank switching system similar to NEC's to let you access up to *four additional banks of 32K, giving the NEC PC-8201 up to 192K of on-line memory!* Now there really is a portable computer of amazing proportions.

THE PORTABLE SOLUTION

Now you can have gobs of data instantly available at the flick of a switch. The SideCar™ plugs into the NEC PC-8201 in the same slot the NEC 32K cartridge uses. The memory is powered by two standard size AA batteries when the computer is not in use. You can even change the batteries without losing the data. SideCar™ comes standard with 32K of memory, with up to three additional 32K modules available giving it a total capacity of 128K. They are simple plug-in options so you can buy a 32K version now and add memory as needed. The batteries will support the memory for up to one year.

NO RISK OFFER

We give you a 30 day satisfaction guarantee and a 1 year warranty on your SideCar™. If you are not completley satisfied for any reason, we will refund the entire amount of your purchase. If at any time during the one year warranty period your SideCar™ requires service, we will fix or replace it within 48 hours.

THE BOTTOM LINE

The basic 32K SideCar™ with 32K in bank 1, expandable to 128K, is $199 (Part #SC32). User installable 32K banks are $100 for bank 2 (Part #SCB2), and $110 each for bank 3 and 4 (Part #SCB34). If ordered together the banks are installed and tested at the factory.

Price includes shipping, and insurance in the continental USA. Your SideCar™ will be shipped the next business day via UPS surface freight. If you want 2nd day air service, just add $4. No extra charge for VISA/MasterCard, or American Express. For fastest delivery send certified checks or credit card. Calif. residents add 6% sales tax. Personal checks take 3 weeks to clear. Call for purchase order information.

PURPLE COMPUTING

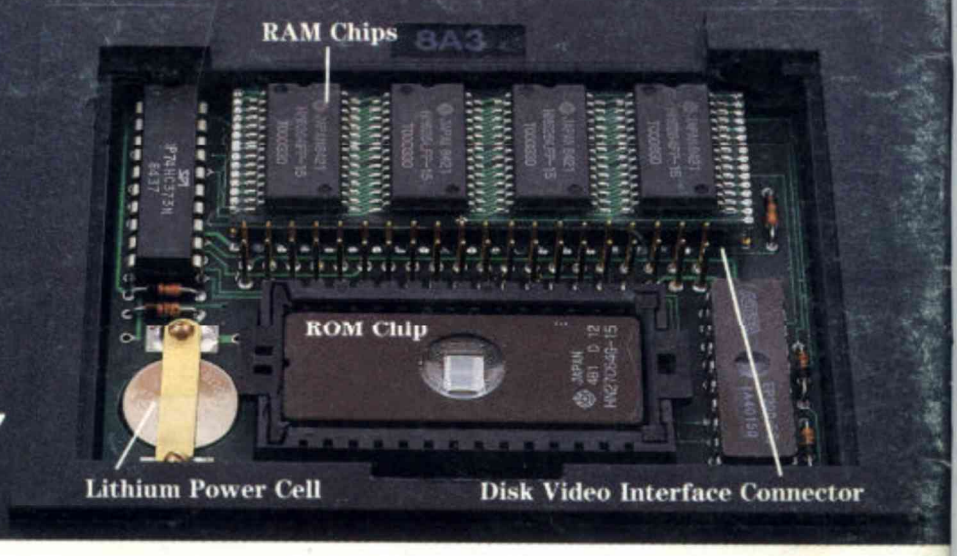
2068 Ventura Blvd.
Camarillo, CA 93010

Outside California toll free
(800) 732-5012

Inside California (805) 987-4788

Circle 43 on Reader Service Card

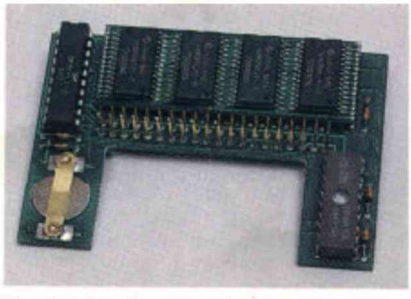
State of The Art RAM Technology



At last, a 96K Model 100!
"The new PG Design RAM should be in every Model 100 built!"

Miniaturized Technology

Our miniaturized RAM chips are state of the art. They are the most advanced memory chips found anywhere in the world. Their tiny size allows us to keep a low profile in the expansion port of the Model 100. We use a technique called *vapor phase soldering* to ensure that each and every tiny connection is clean — perfect.



The RAM module is precision constructed.

Like The Original

Each 32K RAM bank has its own command of the software that comes in your Model 100. BASIC, TEXT, TELCOM, ADDRSS, SCHEDL are all there in each bank and you can use them as you would in the original bank. Each bank can be accessed from any of the other banks. We even have an optional data transfer program which allows data to be transferred from one bank to any other bank. It's flawless!

Simple Installation

"Adding this 64K RAM module to your Model 100 is as easy as putting in new batteries." Once you've removed the expansion cover on the back of your Model 100, just snap the **PG Design** RAM module in. You can't get it wrong! The pins line up perfectly with the expansion holes in the Model 100 compartment. Snap the cover back on and turn your Model 100 over. Turn it on and enter BASIC. Type in the one line program we supply you and presto—you've got a Model 100 with 96K of RAM. You do not need a 32K Model 100 to utilize the **PG Design** 64K RAM module.

No Need To Remove It

The beauty of this RAM module is that we've enabled you to have a Model 100 with 96K of RAM and we've given you access to the other Model 100 options within the expansion compartment. The DVI connection can be made easily with our rugged connectors. Gone are the flat flimsy pins. And best of all, the ROM slot is clear to insert any ROM modules, (like Tandy's Multiplan on ROM). We designed this RAM module so it wouldn't ever have to be removed from your Model 100. But, if you should remove it, we've installed a lithium power cell that will keep all the data on the module intact for six months outside the Model 100. Six months! The actual life span of the lithium power cell while in the Model 100 is nearly six years!

Guarantee

We stand behind all the products we manufacture at **PG Design.** If you are not completely satisfied with your purchase, call us! If we cannot solve your problem, return the product to us and we will refund your money. We are positive that you will be completely satisfied with all our products.

Order Today

64K RAM module — **$375**
32K RAM module — **$250**
If you want only a 32K version of the RAM module, you may upgrade later for only **$150.** The 32K version is constructed exactly as the 64K module.

Data Transfer Program — call

Call us at 313/727-2744, or write. We accept Visa and MasterCard, as well as check or money orders. We ship within five days of receiving your order.

Dealer Prices Available

TRS-80 is a trade mark of Radio Shack

PG DESIGN ELECTRONICS, INC. *Micro-Computer Peripherals*

00040 Gratiot, Richmond, Mich. 48062 (313) 727-2744

Circle 39 on Reader Service Card